DOCUMENT RESUME

ED 240 110 SP 023 817

AUTHOR Griffin, Gary A.; And Others
TITLE Changing Teacher Practice. Final Report of an Experimental Study.
INSTITUTION Texas Univ., Austin. Research and Development Center for Teacher Education.
REPORT NO RDCTE-9052
PUB DATE Oct 83
NOTE 277p.; For related document, see SP 023 815.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC12 Plus Postage.
DESCRIPTORS Academic Achievement; Behavior Change; *Change Strategies; Classroom Techniques; Elementary Education; *Improvement Programs; Inservice Teacher Education; Instructional Improvement; *Research Utilization; *Staff Development; Teacher Behavior; *Teacher Effectiveness; Teaching Styles
IDENTIFIERS *Changing Teacher Practice Study

ABSTRACT

A pilot study attempted to develop a link between research findings and potential users of those findings. A school-based intervention, Changing Teacher Practice (CTP), was developed to teach school leaders, principals, and resource leaders what research has discovered to be effective teaching and effective staff development. CTP was designed to determine if research findings could be used to improve practice and whether practitioners in a school setting were receptive to knowledge derived from research procedures. A major concern was the effect of staff developers' behaviors upon teachers with whom they worked, and the effects of teachers' behaviors on pupil outcomes. Study topics covered in this report include: (1) purposes, problem, and rationale of the study; (2) review of selected literature on research on teaching and the process of change; (3) design used to determine outcomes at different levels; (4) hypotheses proposed to examine effects of the intervention; (5) description of site and participant selection; (6) intervention training for staff developers: instruments and procedures; (7) findings and analysis of hypotheses; and (8) discussion, implications, and recommendations. Samples of the instruments used in the study (journals, observation processes, questionnaires) are appended. (JD)

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Research and Development Center for Teacher Education

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CHANGING TEACHER PRACTICE

FINAL REPORT OF AN EXPERIMENTAL STUDY

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Report No. 9052

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ABSTRACT

The Changing Teacher Practice study was an effort designed to introduce into an ongoing school setting research findings associated with effective teaching and effective school improvement. These two bodies of findings were integrated into a 31 hour intervention presented to school leaders, principals and resource teachers over a five day period prior to the opening of the 1982-83 school year. The experimental group leaders were matched with a control group. Subsequent to the intervention, data in the form of journal self-reports were collected from school leaders and teachers and two teachers working with each of the school leaders were observed teaching reading and mathematics. Using a quasi-experimental design, data were collected over a five month period beginning on the first day of the school year and ending in the first week of the sixth month of school. Analysis of journal entries demonstrated that there was a significant treatment effect in that experimental group school leaders reported using more than twice as many research-based leadership behaviors than did control group members. Experimental group teachers also demonstrated more research-based effective teaching behaviors than did control group teachers, with statistically significant differences in the areas of planning for academics, academic presentation, planning for presentation of rules and procedures, and presentation of rules and procedures. The implications of this research lie in the arena of research into practice and suggest that school leaders and teachers are receptive to research findings, that this receptivity is probably rooted in the direct relation of the content of the intervention to the conventions of teaching and schooling, that the intervention provided a focus for going about the business of leadership and teaching, and that the research findings formed a technical core around which teachers and leaders could organize their professional activity.

research findings can be used to make important differences in schooling and in teaching.

Gary A. Griffin, Principal Investigator

November, 1983

TABLE OF CONTENTS

Abstract..... iii

Preface..... v

INTRODUCTION..... 1

Purposes..... 2

Problem..... 5

Rationale..... 6

REVIEW OF SELECTED LITERATURE..... 8

Research on Teaching..... 9

Criteria for Selection of Research Studies..... 10

Description of Selected Studies..... 10

Caution on Variable Names..... 11

Selected Findings on the Learning Environment..... 12

Selected Findings on Management of Behavior..... 14

Classroom Administration..... 14

Prevention of Misbehavior..... 15

Reaction to Misbehavior..... 16

Selected Findings in Classroom Instruction..... 17

Preparing Students for the Lesson..... 17

Teacher Preparation of the Lesson..... 17

Student Practice After the Presentation..... 19

Selected Findings on Teaching Style..... 20

Interactions With Students..... 20

Organized Instructional Activities..... 21

Summary of Research on Teaching..... 23

Research on the Process of Change..... 24
The I/D/E/A Study..... 25
The School as a System..... 28
Assumptions..... 28
Features..... 29
Activities..... 29
Anticipated Outcomes..... 31
The Rand Study..... 32
The Concerns-Based Adoption Model..... 37
Summary of Research on the Process of Change..... 38
Summary..... 39
METHODS AND PROCEDURES..... 39
Overview..... 39
Level 1..... 39
Level 2..... 40
Level 3..... 40
Level 4..... 40
Hypotheses..... 40
Hypothesis 1..... 40
Hypothesis 2..... 40
Hypothesis 3..... 40
Hypothesis 4..... 41
SITE AND PARTICIPANT DESCRIPTION..... 41
Site Selection and Description..... 41
Participant Selection..... 43
Participant Description..... 44
Demographics..... 44

Treatment Group Staff Developers..... 44
Control Group Staff Developers..... 46
Treatment Group Teachers..... 48
Control Group Teachers..... 51
Participants' Beliefs Regarding Their Own and Their Students' Abilities..... 54
Summary..... 55
Design..... 57
Intervention..... 58
Day 1..... 58
Day 2..... 60
Day 3..... 62
Day 4 and 5..... 63
Instruments..... 64
Staff Developers' Journals of Interactions with Participating Teachers..... 64
Participating Teachers' Journals of Interactions with Staff Developers..... 64
Barnes Teacher Observation Instrument (BTOI)..... 64
Preobservation Teacher Contact..... 66
Demographic Questionnaire..... 66
Student Engagement Ratings (SER)..... 66
Teacher Questionnaire..... 67
Procedure..... 67
Pre-intervention..... 67
Week 1 (August 23-27, 1982)..... 68

Weeks 2-3 (August 30-September 13, 1982) First Observation Period..... 71
Weeks 4-5 (September 13-September 24, 1982)..... 71
Weeks 6-7 (September 27-October 15, 1982)..... 71
Week 7 (October 11-15, 1982)..... 71
Weeks 8-9 (October 18-29, 1982) Second Observation Period. 72
Weeks 10-21 (November 1, 1982-January 21, 1983)..... 72
Week 21 (January 17-21, 1983)..... 72
Weeks 22-23 (January 24-February 4, 1983) Third Observation Period..... 72
Analysis..... 72
Analysis of Hypothesis 1..... 74
Analysis of Hypothesis 2..... 75
Analysis of Hypothesis 3..... 78
Analysis of Hypothesis 4..... 78
Limitations..... 79
FINDINGS..... 81
Hypothesis 1..... 81
Hypothesis 2..... 86
Hypothesis 3..... 109
Hypothesis 4..... 110
DISCUSSION, IMPLICATIONS AND RECOMMENDATIONS..... 118
Discussion..... 119
The Setting and the Participants..... 119
The Conventions of Schooling..... 122
The Conventions of Teaching..... 124

Implications..... 126
Research Into Practice Implications..... 126
Local Capacity Building Implications..... 128
Recommendations..... 130
CONCLUSION..... 131
REFERENCE NOTES..... 135
REFERENCES..... 139
APPENDIX A. Changing Teacher Practice Intervention..... 143
APPENDIX B. Guidelines for Teachers' Journals..... 246
APPENDIX C. Barnes Teacher Observation Instrument..... 248
APPENDIX D. Pre-Observation Teacher Contact..... 256
APPENDIX E. Demographic Questionnaire 257
APPENDIX F. Teacher Questionnaire 259

List of Tables

1 Personal/Professional Characteristics of Treatment Group Staff Developers.....45

2 Personal/Professional Characteristics of Control Group Staff Developers.....47

3 Personal/Professional Characteristics of Treatment Group Teachers.....49-50

4 Personal/Professional Characteristics of Control Group Teachers.....52-53

5 Mean Frequencies of All Desired Staff Developer Behaviors Per Journal Entry by Group and Participant.....82

6 Mean Frequencies of 23 Desired Staff Developer Behaviors Per Journal Entry by Group.....83-84

7 Mean Rates of Observation Categories for Treatment and Control Teachers.....87

8 Summary of Analysis of Variance for Planning and Preparation by Treatment Condition, Staff Developer, Time and Content.....89

9 Mean Rates for Planning and Preparation by Treatment Condition and Staff Developer.....90

10 Summary of Analysis of Variance for Academic Presentation by Treatment Condition, Staff Developer, Time and Content.....92

11 Summary of Analysis of Variance for Interactions by Treatment Condition, Staff Developer, Time and Content.....93

12 Summary of Analysis of Variance for Practice by Treatment Condition, Staff Developer, Time and Content.....94

13 Practice by Treatment Condition and Staff Developer.....95

14 Summary of Analysis of Variance for Seatwork by Treatment Condition, Staff Developer, Time and Content.....97

15 Mean Rates for Seatwork by Treatment Condition and Staff Developer..... 98

16 Summary of Analysis of Variance for Holds Students Responsible for Assignments by Treatment Condition, Staff Developer, Time and Content..... 99

17 Summary of Analysis of Variance for Organizes Classroom by Treatment Condition, Staff Developer, Time and Content.....100

18 Summary of Analysis of Variance for Presentation of Rules and Procedures by Treatment Condition, Staff Developer, Time and Content....102

List of Figures

1 Conventional Research Design.....57

2 RITE Changing Teacher Practice Research Design.....57

3 The Changing Teacher Practice Strategy.....61

4 Data Collection Schedule.....69

5 Research Design, Staff Development Level.....73

6 Research Design, Teacher Level.....74

7 Research Design, Student Level.....74

8 Experimental Design for Changing Teacher Practice Study.....77

List of Tables, cont'd.

19 Mean Rates for Presentation of Rules and Procedures by Treatment Condition and Time.....103

20 Summary of Analysis of Variance for Holds Students Responsible for Behavior by Treatment Condition, Staff Developer, Time and Content...105

21 Summary of Analysis of Variance for Reactions to Students' Behavior by Treatment Condition, Staff Developer, Time and Content.....106

22 Mean Rates for Teacher Responses to Students' Behavior by Treatment Group.....107

23 Mean Percentages of Treatment and Control Students by Subject, Time and SER Category.....111

24 Summary of Analysis of Variance for On-Task Academic by Treatment Condition, Staff Developer, Time and Content.....113

25 Summary of Analysis of Variance for On-Task Procedural by Treatment Condition, Staff Developer, Time and Content.....114

26 Overall Mean Percentages of Students Engaged in "Off-Task, Unsanctioned" and "Dead Time" Behaviors by Staff Developers and Treatment Condition.....115

27 Summary of Analysis of Variance for Off-Task, Unsanctioned by Treatment Condition, Staff Developer, Time and Content.....116

28 Summary of Analysis of Variance for Dead Time by Treatment Condition, Staff Developer, Time and Content.....117

PREFACE

The past fifteen years have been marked by startling educational research activity. This period in our shared history might be characterized as the one in which we learned more about teaching and schools than we had ever known before. Among the accumulated bodies of information are two of particular importance to persons who are concerned with improving the quality of the nation's schools: teacher effectiveness and sound leadership.

The study that is reported in this document capitalized on what has been learned about the relation of what teachers do to how students learn, and on what school leaders do to help schools become better places for teaching and learning. The Research and Teacher Education (RITE) program of the Research and Development Center for Teacher Education at The University of Texas at Austin developed a school-based intervention designed to teach school leaders, principals and resource leaders, what research has discovered to be effective teaching and effective staff development. This intervention, the Changing Teacher Practice strategy, was designed to find out if research findings could be used to improve practice, to discover whether or not natural school settings and the people in them are receptive to knowledge derived less from conventional wisdom and more from research procedures.

The study was a success. School leaders and teachers did adopt many of the research-derived "effective" behaviors. Also, the persons were receptive to and enthusiastic about the role that research findings can play in making their difficult and important tasks more manageable and more coherent. The study served to demonstrate that the research into practice phenomenon need not be only another item on one's "wish list." It can be

realized, and the pages that follow demonstrate how that realization can take place.

This effort was a real research and development activity. The planning and execution of the intervention was an instance of development and the subsequent study of the effects of that intervention was conducted using the conventions of rigorous research. The difficulties and complexities of going about these activities required the cooperation and skill of a large number of researchers and practitioners. In addition to the persons whose names appear on the cover page of this final report, there are others who contributed significantly to the work. Madeline Sutton, Margaret Schaeffer, and Carolyn Anderson served as on-site members of the RITE research team, met high standards of observer reliability, and, in addition, extended warm hospitality to RITE staff on data collection visits. Freddie Green and Vicky Rodgers coordinated the multitude of details associated with large-scale research with efficiency and grace and work with other staff members in the production of this report.

Finally, the staff of the participating school district accepted the RITE presence in their schools and classrooms in a variety of professionally collegial ways. Accepting and welcoming observers on the first day of a school year is but one demonstration of the professionalism of this group of teachers and administrators. Continuing to receive these observers over a five month period is another. At no time during the course of the study did RITE staff detect anything but enthusiasm and professional curiosity about whether the study would help to contribute to the improvement of practice.

The Changing Teacher Practice study is one way to go about doing the difficult but rewarding business of school improvement. There are many others. But, we believe that this study is an important illustration of how

INTRODUCTION

The Research in Teacher Education (RITE) program area of the Research and Development Center for Teacher Education is concerned with issues, problems, programs, practices, and people that come together for the purpose of providing teacher education. The research and development in which RITE engages reflects the belief that teacher education is a continuum of opportunity for learning and growing. At one extreme of the continuum is the preservice teacher education typically conducted in colleges and universities. After completing a preservice program, the teacher candidate enters the induction phase of teaching. Following induction, the teacher enters the career teacher period, commonly known as inservice.

The first study conducted by RITE was a descriptive study of student teaching (preservice clinical teacher education). That study, the first of its kind and magnitude, provided a broad-scale description of existing practice and suggested guidelines for future practice. Analyses of the extensive data bases developed during that study will contribute to the generation of hypotheses for testing in normative and experimental modes. This paper presents the report of the second major RITE study: an intervention in inservice teacher education.

This study is rooted in several assumptions about educational research, the nature of schools as human organizations, and the delivery of professional growth opportunities to teachers. It is widely believed that research findings are not used as guides to school and classroom practice. A major part of the intervention in this study grew out of RITE's concern that the majority of teachers and administrators in school settings were not influenced by the findings of research on teaching and, in fact, were unaware of them. Many reasons have been advanced for this condition such as the

reluctance of researchers to communicate their findings to constituent groups other than their research colleagues, the rigidity of school persons in terms of reconceptualizing the role of teacher or the organization of schools, the "closed system" nature of many school settings, the lack of rewards for changing behavior, and so on (Tikunoff, Ward, & Griffin, 1981). In short, it appears that the link between the research findings and the potential users of those findings was not developed to any sufficient degree.

The present pilot study was an attempt to develop such a link. The following pages contain the final report of this effort to alter staff developer, teacher, and pupil behaviors. First, the purposes of the study are presented. These purposes are supported and explicated, to a degree, by the review of related research which follows. The methods are detailed, the intervention described, and the results presented. A final section presents interpretations and implications of the findings with emphasis upon their importance for practical application in educational settings.

Purposes

This pilot study used an intentional intervention with persons responsible for inservice training of teachers. The intent of the intervention was to increase the skills of these persons in bringing about specific changes in teacher practice. Findings from two areas of research, teaching practice and the process of change, were joined in forming this intervention. The content was identified from studies of teaching practice and the delivery system was based on research findings regarding effective change. Much of the material is more fully elaborated in earlier RITE publications (Barnes, Note 1; Edwards, Note 2; Griffin, Note 3, Note 4).

The intervention, termed Changing Teacher Practice (CTP), was based upon the belief that the past two decades have seen an increase in the

research-based knowledge about (1) effective teaching and (2) effective strategies for changing teachers and changing schools. The CTP study integrated these two bodies of research findings in an intervention strategy aimed at causing effective staff developer behavior, effective teaching, and ultimately, positive pupil outcomes.

Several events and activities were influential in the development of the study. First, two staff papers provided research-derived foundations for the study. Barnes (Note 1) provided a synthesis of the findings of the most frequently cited major studies of teaching as a focus for the selection of content for the CTP study. Edwards (Note 2) provided a synthesis of findings drawn from research on teacher change as a focus for the selection of components of a strategy. Second, an invitational working conference was held in Austin, Texas, in October of 1981 during which participants interacted with RITE staff over the issues of (1) which research on teaching findings might be most appropriate for inclusion in the study, (2) which school and system variables must be considered in effective staff development, (3) which indicators of effective teaching might be included as effectiveness criteria, and (4) which research methods and procedures would be most appropriate for an inservice teacher education intervention (Defino & Carter, Note 5).

Through the generosity of the Dean's Development Fund of The University of Texas at Austin College of Education, five papers were commissioned to add to the substantive base of the CTP study. Stallings (Defino & Carter, Note 5) considered the question "How useful are the findings from the research on teaching?" Ward (Defino & Carter, Note 5) proposed an expanded view of student outcomes and teacher behaviors as indicators of teacher

effectiveness, and specifically suggested that the agreement between teacher intent and student understanding of what is to be learned/accomplished/produced may be one indicator of effective teaching. Williams (Defino & Carter, Note 5) offered propositions to move attempts to alter teacher behavior from symbolism to reality. Good (Note 6) examined the research on teaching findings from the perspective of their potential for inservice clinical teacher education. Lieberman and Miller (Note 7) considered research on teacher and school change from the same orientation. These activities, events, and products provided both substantive and procedural support for this study.

Briefly, the preliminary ideas for the CTP study might be put forth as follows. The findings from research on teaching have not found their way into classrooms. Likewise, the knowledge about how best to work with teachers and other school persons toward positive change has not been widely observed in practice. RITE proposed to consider these two bodies of research-derived information in terms of their potential for clinical inservice teacher education. The CTP study (1) used research on teaching findings as content for a planned intervention, (2) used research on teacher and school change as the basis for a delivery system for that content, (3) combined these two bodies of information into a specific change strategy, which was (4) introduced to staff development persons in an ongoing school setting and (5) reinforced twice in that setting. Participants were observed for treatment effects upon staff developer behavior, teacher behavior, and on-task student behavior. (On-task behavior was used as a proxy for student achievement. See Anderson, Evertson, & Brophy, 1979; Emmer, Evertson, & Anderson, 1980; Sanford & Evertson, 1981).

Specific purposes of this research activity were:

1. To determine the effects of a strategy derived from school change research findings as a prescriptive strategy to change teacher behavior.

2. To determine the degree to which the content of the strategy (i.e., findings from research on teaching) could be induced into other settings.

3. To determine the relative power of the strategy in terms of context variable influence.

4. To generate a change strategy which could be tested in a variety of settings (other than the one selected for this pilot study).

Problem

During the past years of intense and persistent attempts to introduce changes in the instructional programs of schools, it was discovered that after an initial flurry of activity, observations of practice illustrated Sarason's (1971) conclusion that "the more things change, the more they remain the same." With some variability in terms of effect, it can be noted that these past attempts at change were also less than optimal in their impact upon teachers and teaching. In the instance of curricular change, it was informally hypothesized by some that the knowledge demand upon teachers was too great to invite change. In the case of changing teacher behavior, it was suggested that the match between and among teaching practice, content differences, and the general nature of schools was such that change was a formidable object of attention and it might best be left alone. Neither of these two conclusions, based upon recent research and practice, appeared to be satisfactory or, indeed, explanatory enough to deter additional effort to promote change in teachers.

An alternate explanation to those which are noted above is a simple but powerful one. It can be hypothesized that the attempts to change did not take into account two critical factors: Teachers' desire and/or need

to change and the existential phenomena of schools which must be manipulated in order for change to be seen as necessary and desirable from teachers' perspectives. The first of these factors was central to the CTP effort.

Currently, teachers are under considerable pressure to become more effective in their delivery of instruction and in the management of their classes. Further, there are both research findings and public opinion polls which suggest that there is a relation between how well a classroom is managed or how well classroom instruction is conducted and how much students learn. There is little doubt in many minds that a concerted attempt to improve teachers' classroom management, organizational skills, and instructional skills would be received well by teachers and others concerned with schooling.

The content of teaching behavior requires a means for delivery. Many strategies for school and teacher change advanced during the past two decades did not take into account the critical school variables which appear to be directly related to the degree of success of innovations. This RITE intervention employs a means by which school, system, and classroom variables are manipulated such that change can take place and, ultimately, teachers can make the difference claimed by Good (Note 6).

Rationale

There is a set of research-based conclusions about school change which guided this effort. These conclusions, more often than not, have emerged as a consequence of post hoc analyses of efforts to innovate in schools. Some have come about as a conscious attempt to study change as it occurs. What is relatively rare is a prescription for change which is carefully documented and systematically subjected to rigorous research in contrast to

prescriptions for change which rest primarily at the level of proposition or sets of "ought" statements. This is not meant to denigrate or otherwise lessen the power of descriptive or after-the-fact research. In fact, it is this body of research which leads to the speculation that prescriptions for change can be put into practice. A cautionary word is necessary, however. One principal finding of change-oriented research is that attempts to change are often situation-specific (Berman & McLaughlin, 1978). That is, the contexts in which the change efforts take place vary widely and the variation appears to produce equally variable effects if the change strategy does not account for it. Therefore, the CTP intervention had as a deliberate component the opportunity for staff developers to select strategies and teaching behaviors that, after systematic reflection on situation-specific school variables, fitted their setting.

The intervention was implemented with the staff development persons such that (1) the conclusions from the change literature were consciously attended to, while at the same time (2) the persons charged with system staff development made the primary, situation-specific decisions about how to move forward with the change strategy.

The second point above is important and should be emphasized. In contrast to some school improvement efforts, the CTP study did not prescribe what instructional leaders must do with their teachers. Instead, the strategy proposed a set of options for working with teachers and focused participants' attention on the need to make reasoned and rational selections from the set. Likewise, staff developers were not required to focus on any or all of the research-derived teaching behaviors but to select the ones that were most appropriate for the teachers with whom they worked.

The point of intervention for the CTP study was a critical issue. Because RITE was concerned about the replicability of the CTP study in settings other than the one in which the original research took place, it was believed that the most appropriate intervention point was at the staff developer level. That is, the content and the strategy would be introduced to persons charged with staff development who would be studied in terms of their own behaviors and beliefs as well as their apparent effects upon the teachers with whom they worked. It was believed that this approach would be more cost effective than ones that work directly with teacher groups. The CTP study was based on the assumption that school leaders can provide instructional leadership to faculty groups if they are helped to focus their behavior and if they have a knowledge base from which they can work.

The RITE study intervened in an effort to teach the staff developers how to use what research has shown to be effective in changing teacher practice. The content base was limited to the research on teacher findings which seemed most robust and the strategy issues were limited to change findings which appeared to be most generalizable across school settings. The staff developers then trained teachers to use what research has shown to be effective in raising students' performance level in the areas of mathematics and reading. Teachers then demonstrated in their classrooms the behaviors in which they had been trained. The students could then be observed to determine their levels of on-task behavior, a proxy for achievement gain.

REVIEW OF SELECTED LITERATURE

Certain specific teaching classroom behaviors have been identified by research as being positively related to higher student scores on standardized mathematics and reading tests. Research has also indicated that student achievement is related to on-task behavior of students. These findings

formed the content of the inservice training to be delivered by staff developers to the teachers. In addition, certain specific features have been identified by research studies as positively related to the facilitation of desired change in teacher practice. These features informed the system for delivery of the content. Taken together these two bodies of knowledge formed synergetic inservice training that was research-derived, theoretically based, and conceptually coherent.

Research on Teaching

The teacher behaviors forming the content of the inservice training have been identified by the line of research generally referred to as "teacher effectiveness research" (Medley, 1980). In these studies teachers and students in a variety of settings were observed for periods of time and their behaviors recorded. From these observational records, teacher behaviors which related to student learning as measured by standardized tests were then identified. An operational definition of the effective teacher emerged from this line of research: The effective teacher is the teacher whose classes regularly score higher on standardized achievement tests than do classes of other teachers after entering differences among classes are statistically controlled (Good & Grouws, 1977; Brophy & Evertson, Note 8; Good & Grouws, Note 9; Stallings, Needels, & Stayrook, Note 10).

Certain dangers do exist for misuse and overgeneralization of the findings from teacher effectiveness research. At the present time some effective behaviors for some grades and some subjects and with some groups of students have been identified and tested. Most studies are correlational. Researchers themselves have been careful to point out the limitations of this type of research: Consumers are cautioned not to assume causal relationships between teaching behaviors and achievement. Because the researchers were

unable in most cases to control many variables that impact upon achievement, the findings cannot be used as recipes for successful teaching. Consumers have also been cautioned not to overgeneralize even these correlational relationships to new grade levels or subjects or for all types of students since some evidence, as well as common sense, suggest that these factors interact with effective behaviors (Brophy & Evertson, Note 8). Keeping these limitations in mind, specific findings in the broadly-defined areas of learning environment, management of behavior, classroom instruction, and teaching style can be identified to serve as content in inservice training.

Criteria for Selection of Research Studies

The studies selected for inclusion in the CTP intervention met several criteria. First, studies were selected if their research methodologies could be verified as being procedurally rigorous and not open to serious interpretive question. Secondly, findings emerged from "real" classroom settings rather than laboratory settings and were amenable to precise and clear translations by practitioners. Third, the findings related directly to demonstrable concerns and/or problems of teachers and teacher educators (Griffin, Note 3). Recognized experts in the field were also consulted and their recommendations of studies which meet these criteria were considered.

Descriptions of selected studies. Three sets of major research efforts provide most of the findings selected for inclusion in the CTP inservice content. The major topics of interest in one group of studies were management and organization of the classroom. The work of Brophy and Evertson (Note 8) on the Correlates of Effective Teaching Project began with correlational studies in the second and third grades. Other studies based upon their work eventually moved into other grades and subjects, including an

experimental study in reading at the first grade level and a descriptive study in mathematics and English at the junior high level.

The second set of studies which began with the work of Good and Grouws (1977, 1979, Note 9) on the Missouri Mathematics Effectiveness Project were correlational studies of teachers and students in third and fourth grade mathematics. Later, experimental studies based on these findings were conducted in sixth, eighth, and ninth grade mathematics. Major emphasis in these studies has been on systematic instruction.

This line of research began with the work of Stallings on the Follow Through evaluation of the Planned Variation programs. Data for the correlational study were collected for reading and mathematics in grades 1 and 3. These findings served as a basis for extending research into the teaching of basic reading skills in grades 7-12. Both a correlational study and an experimental study were conducted at this level. The emphasis in these studies has been on a program of effective instruction in reading skills.

Other studies have contributed in some way to this synthesis of findings. The work on the Follow Through evaluation in Florida by Soar and Soar (1972) and the work by McDonald and Elias (e.g., Note 11) on the Beginning Teacher Evaluation Study contribute some important findings.

Caution on variable names. Due to the problems posed when various studies coin their own operational definitions for variables, some caution is advised in interpreting this compilation of findings. Efforts have been made to examine original coding and observation instruments in order to determine exactly what behaviors comprised a variable. In some cases, inferences were made which may, of course, be in error. The reader will notice that variable terms or descriptions may not be exactly the same as used in original

reports. This occurs because an effort was made to reduce the multitude of variables to a more manageable number by combining categories which appeared identical or very similar but carried different labels across various studies.

Selected Findings on the Learning Environment

One area of teacher effectiveness research producing some of the most consistent findings has been research on the learning environment. Each study included in this review found positive relationships between classrooms broadly described as "work-," "task-" or "academically-oriented" and student achievement gains (Emmer, Evertson, & Anderson, 1980; Good & Grouws, 1979; Brophy & Evertson, Note 8; Stallings, Needels, & Stayrook, Note 10; Evertsor, Anderson, & Brophy, Note 12; Evertson, Emmer, & Brophy, Note 13; Good & Grouws, Note 14; Stallings & Kaskowitz, Note 15; Stallings, Note 16). The terms, "work-," "task-," or "academically-oriented," usually describe classrooms where teachers expect and require students to pay attention, to work persistently toward completion of assignments, to exhibit cooperative attitudes, and, in general, to concentrate on academic activities rather than socializing. The amount of time allocated to academic tasks has been significantly related to student achievement in several studies (McDonald & Elias, Note 11; Evertson, Anderson, & Brophy, Note 12).

This general description of the learning environment associated with effective teaching is composed of the collection of specific teacher behaviors found separately in different projects. These behaviors include having "high achievement expectations" for students regardless of their entering ability levels (Good & Grouws, 1977; Brophy & Evertson, Note 8), assuming the role of "instructional leader," taking personal "responsibility for students' learning" (Emmer, Evertson, & Anderson, 1980; Good & Grouws,

1977; Brophy & Evertson, Note 8), and "communicating expected behaviors and attitudes" explicitly to students (Emmer, Evertson, & Anderson, 1980; Brophy & Evertson, Note 8).

Another broad factor, "a warm, supportive environment," was also consistently found to be positively related to student achievement in most of the studies reviewed here (Emmer, Evertson, & Anderson, 1980; Good & Grouws, 1979; Brophy & Evertson, Note 8; Stallings, Needels, & Stayrook, Note 10; Evertson, Anderson, & Brophy, Note 12). To achieve this warm, supportive environment, some teachers "praise" students frequently when praise is deserved, "respect student contributions" to class (Evertson, Anderson, & Brophy, Note 12), and provide "specific praise" which is offered in an appropriate manner (Anderson, Evertson, & Brophy, 1979). Effective teachers are generally confident and enthusiastic (Evertson, Anderson, & Brophy, Note 12). Having a warm, supportive environment is apparently more beneficial for low socioeconomic status (SES) students who respond better to more "individual, private contacts" with the teacher (Brophy & Evertson, Note 8; Evertson, Anderson, & Brophy, Note 12) and to more positive "teacher affect" in general (Brophy & Evertson, Note 8). Stallings (Note 16) reports significant positive relationships between "all positive interactions" and student achievement and significant negative relations between "all negative interactions" and student achievement. Students of higher abilities benefit from learning situations where the teacher allows them some "autonomy" (Brophy & Evertson, Note 8). Most students regardless of ability level apparently benefit from teachers who maintain a basically "orderly classroom" (Good & Grouws, 1977, 1979) and do not allow a prevalence of "social" conversation (Stallings, Needels, & Stayrook, Note 10). The optimal limits for social conversation and creative disorder have yet to be established.

In summary, teachers who establish both a task- or work-oriented atmosphere in the classroom and a warm, supportive environment are providing students with a successful learning environment.

Selected Findings on Management of Behavior

The findings related to management of behavior are organized here into those teaching behaviors that concern administration of the classroom, prevention of misbehavior, and reaction to misbehavior. The studies examined here essentially agree with Kounin (1970) that effective teachers actively seek to prevent misbehavior through anticipation of problems and planning to avoid those problems rather than waiting for misbehavior to occur and then disciplining the students.

Classroom administration. In the area of classroom administration the effective teacher is described as being "well-organized" (Stallings, Needels, and Stayrook, Note 10). Evidence that the teacher is well-organized comes from several observable behaviors. These include having "clear rules and procedures" which will probably be written and may be posted for students to read (Emmer, Evertson, & Anderson, 1980). Rules and procedures are so important to organization that they may actually be taught to the students using generally recognized principles of instruction where the teacher introduces the rules, gives a rationale for the rules, demonstrates and gives examples, monitors as the students practice the rule, provides feedback, and reteaches, if necessary (Emmer, Evertson, & Anderson, 1980). Effective teachers are able to establish routines and procedures to guide and regulate pupil behaviors while still maintaining a desirable degree of flexibility in the classroom. Rules and procedures are used to reduce the complexity of the classroom for both students and teachers, not to hamper the teacher's decision-making process during class.

When the time for class arrives, effective teachers treat that time as a valuable resource. These teachers begin class promptly and move students from one activity to another smoothly and quickly (Brophy & Evertson, Note 8; Evertson, Emmer, & Brophy, Note 13). To encourage this ease of transition, classrooms are arranged so that students may move to new areas or pick up needed supplies with as little disruption as possible to other students or the teacher. Effective teachers also take into account the need to see and be seen during all class activities. As a consequence, furniture is arranged so that all students can see chalkboards, assignment sheets, or other areas used by the teacher when communicating with the class and the teacher can see all students most of the time (Emmer, Evertson, & Anderson, 1980).

In summary, the effective teacher-administrator decides which behaviors and attitudes are acceptable, designs classroom procedures and rules to foster those behaviors and attitudes, and actually teaches rules and procedures in an instructional setting.

Prevention of misbehavior. The general behavior used by effective teachers to prevent student misbehavior is to be actively involved with the students for most of the classtime (Good & Grouws, 1977, 1979; Brophy & Evertson, Note 8; Stallings, Needels, & Stayrook, Note 10; Evertson, Anderson, & Brophy, Note 12; Stallings, Note 16). Effective teachers provide active instruction (described in more detail in a later section) to much of the class and limit the time spent by students in seatwork (Evertson, Anderson, & Brophy, Note 12). When effective teachers do make seatwork assignments, students are reminded that they are accountable both for their behavior and their assignments (Emmer, Evertson, & Anderson, 1980; Good & Grouws, 1979; Evertson, Anderson, & Brophy, Note 12). The effective teachers monitor the classroom carefully to check for both success in the task and

appropriate behavior (Anderson, Evertson, & Brophy, 1979; Emmer, Evertson, & Anderson, 1980; Good & Grouws, 1979; Brophy & Evertson, Note 8; Stallings, Needels, & Stayrook, Note 10; Evertson, Emmer, & Brophy, Note 13). However, they do not become involved with individuals to the exclusion of the rest of the class (Stallings, Needels, & Stayrook, Note 10).

Effective teachers tend to respond with certain behaviors when they spot problems beginning to develop. Emmer, Evertson, and Anderson (1980) found that effective teachers may "signal the appropriate behavior" by using a previously taught signal or sign to warn students when they are getting off-task, "establish eye contact" with potentially disruptive students, and use a "variety of rewards" to provide positive reinforcement to those students who successfully comply with rules and procedures. In summary, effective teachers try to prevent misbehavior by maintaining active involvement with their students even during seatwork, and reacting to problem situations as they develop.

Reaction to misbehavior. Despite the best classroom organization and efforts in prevention, misbehavior by students sometimes occurs. When this happens, effective teachers are quick to respond. This is an important behavior since some styles of discipline suggest ignoring misbehavior. Effective teachers not only react, they usually stop misbehavior quickly (Emmer, Evertson, & Anderson, 1980; Evertson, Emmer, & Brophy, Note 13; Stallings, Note 16).

The effective teachers name specific students rather than refer to the whole class when they act to stop misbehavior. They cite specific rules which are being broken rather than making general requests for order (Emmer, Evertson, & Anderson, 1980). When a rule is broken, effective teachers are "consistent" in enforcement (Evertson, Emmer, & Brophy, Note 13) and tend to

use "milder, more informative" forms of punishment (Brophy & Evertson, Note 8). In summary, the effective teachers react to misbehavior promptly, focus on specific students and rules, and enforce rules consistently.

Selected Findings in Classroom Instruction

The findings related to classroom instruction are organized into teaching behaviors that prepare students for the lesson, present the content of the lesson, enable students to practice after the presentation, and evaluate student learning. Most of the studies examined for this synthesis support what Good and Grouws (1979) have called a "system of instruction."

Preparing students for the lesson. Part of a systematic instruction pattern involves preparing students for a new lesson. Effective teachers begin with the basics, securing students' attention before proceeding with the lesson (Brophy & Evertson, Note 8). From this point effective teachers use one of several strategies including "stating objectives of the lesson clearly" and explicitly for students (Emmer, Evertson, & Anderson, 1980), giving a rationale (Anderson, Evertson, & Brophy, 1979; Emmer, Evertson, & Anderson, 1980; Good & Grouws, 1979), or "reviewing" content of previous lessons needed for the upcoming presentation (Good & Grouws, 1979). These strategies apparently motivate the students toward academic achievement and orient the students to a particular subject at a particular time. In summary, the effective teacher makes sure the students are paying attention and have some idea, not only of what they are going to do, but why they are going to do it.

Teacher presentation of the lesson. When effective teachers conduct a lesson over new material, they tend to take an active part in presenting that material (Good & Grouws, 1979; Evertson, Anderson, & Brophy, Note 12; Stallings, Note 16). Effective teachers are "clear in their presentation" of

content (Emmer, Evertson, & Anderson, 1980; Good & Grouws, 1977, 1979; Brophy & Evertson, Note 8; Evertson, Emmer, & Brophy, Note 13) and present that material in small steps, especially when they are teaching low ability students (Brophy & Evertson, Note 8). Often the teacher presentation involves teacher-led "discussion" (Stallings, Needels, & Stayrook, Note 10; Evertson, Anderson, & Brophy, Note 12; Stallings & Kaskowitz, Note 15) and "pupil recitation" (Stallings & Kaskowitz, Note 15) rather than lengthy lecturing by the teacher. Apparently the effective teacher attempts to expose students to the new material, move along at a reasonably "brisk pace," and maintain "active participation by the students" (Anderson, Evertson, & Brophy, 1979; Emmer, Evertson, & Anderson, 1980; Good & Grouws, 1977; Brophy & Evertson, Note 8; Evertson, Emmer, & Brophy, Note 13; Stallings, Note 16). During discussion/recitation, effective teachers ask questions that students can answer with a "high degree of success" (Emmer, Evertson, & Anderson, 1980; Brophy & Evertson, Note 8). Effective teachers "vary the cognitive level" of the question according to the ability level of the students (Brophy & Evertson, Note 8; Evertson, Emmer, & Brophy, Note 13) or the instructional goal. Soar and Soar (1972) found that students profited from "highly focused learning tasks" when the measure of success was concrete learning. However, when the measure of success was abstract, complex learning, students profited more from "moderately focused learning tasks" and "information giving and receiving" between teacher and students.

After the presentation of new material effective teachers often conduct some form of "controlled practice" over the new material with the whole class (Anderson, Evertson, & Brophy, 1979; Good & Grouws, 1979; Brophy & Evertson, Note 8; Stallings, Needels, & Stayrook, Note 10). The teachers "monitor student responses" carefully to be sure that students can perform

successfully. While students practice, effective teachers "provide feedback" on student performance. Stallings and Kaskowitz (Note 15) found that both "positive feedback" and "negative feedback" were positively related to achievement in elementary grades but in secondary basic skills classes "negative feedback" was negatively related (Stallings, Note 16). In other studies feedback took the form of "praise" for academic performance (Evertson, Anderson, & Brophy, Note 12) or simple "nonevaluative feedback" (Good & Grouws, 1977). In the case of incorrect responses by students effective teachers provide "supportive" but corrective feedback (Anderson, Evertson, & Brophy, 1979; Stallings, Needels, & Stayrook, Note 10; Stallings & Kaskowitz, Note 15; Stallings, Note 16) or provide "process feedback" showing the student how to achieve the correct answer (Good & Grouws, 1977). The use of controlled practice during or after the presentation allows the effective teacher to catch errors early before students begin work on their own (Anderson, Evertson, & Brophy, 1979; Brophy & Evertson, Note 8). By attending to student understanding of both content and teacher directions at this point in the lesson, effective teachers increase the opportunities for students to be successful in subsequent seatwork and homework (Good & Grouws, 1979; Brophy & Evertson, Note 8). In summary, effective teachers actively lead instruction while maintaining both student participation and student expectations for success. The effective teachers also have students practice new material while the teacher checks for student understanding of both content and directions before the teacher allows students to begin individual seatwork.

Student practice after the presentation. When the effective teacher is reasonably satisfied that students understand the content, students are given

a common seatwork assignment for a small portion of the class period (Good & Grouws, 1979; Stallings, Needels, & Stayrook, Note 10; Evertson, Anderson, & Brophy, Note 12). During seatwork the effective teachers continue to monitor the class and physically move about the room (Good & Grouws, 1979). If a few students are still confused, the effective teacher gets the class started on the assignment and then works with individuals. Students are held "accountable" for both their assignments and their use of time during seatwork (Good & Grouws, 1979; Note 14). Effective teachers regularly assign some small amount of "homework" (Good & Grouws, 1977, 1979; Brophy & Evertson, Note 8; Evertson, Emmer, & Brophy, Note 13) that provides students the opportunity for further drill and practice over the lesson. In summary, effective teachers provide individual practice opportunities, but limit the time students work individually and continue to stay actively involved with the class.

Selected Findings on Teaching Style

The findings on teaching behaviors related to teaching style are organized into teacher interactions with students during instruction and organization of instructional activities. Findings on teaching style again reflect active involvement by the teacher as well as involvement by students.

Interactions with students. Effective teachers provide opportunities during instruction for extensive discussion or "questioning." This is one sanctioned way teachers allow students to receive teachers' attention (Evertson, Anderson, & Brophy, Note 12). Teachers may initiate participation by one of several methods - "calling on specific students in a systematic pattern" (Brophy & Evertson, Note 8), accepting "volunteers" (Good & Grouws, 1977; Evertson, Anderson, & Brophy, Note 12) or accepting "call outs" in low ability classes (Evertson, Anderson, & Brophy, Note 12) or middle ability

classes (Good & Grouws, 1977). Effective teachers also "wait for some response" from students, especially low ability students (Brophy & Evertson, Note 8). If the student gives an incorrect response to the question, effective teachers may "probe," "rephrase," "prompt" (Stallings, Needels, & Stayrook, Note 10; Evertson, Anderson, & Brophy, Note 12; Stallings, Note 16) or "provide the correct answer" to the question (Brophy & Evertson, Note 8). If the student gives a partially correct response, the effective teacher "accepts the substance" of the correct parts of the answer, provides some feedback to the student, and moves the lesson along (Brophy & Evertson, Note 8). These teacher responses to student answers help maintain a "brisk pace" in class discussions (Good & Grouws, 1979; Evertson, Anderson, & Brophy, Note 12). A brisk pace is especially helpful to classes with higher ability students (Brophy & Evertson, Note 8). Effective teachers may ask questions of varying cognitive levels from simple, straightforward requests for verbatim recall to questions requiring students to state an opinion or process questions asking students to describe how they arrived at an answer (Good & Grouws, 1977; Evertson, Anderson, & Brophy, Note 12; Evertson, Emmer, & Brophy, Note 13). Effective teachers stress students' understanding of the meaning of the content in question rather than the form of the students' responses (Good & Grouws, 1977, 1979). When questioning students over the lesson, effective teachers ask questions which students can answer at high rates of success, 70% for high ability students and 80% for lower ability students (Brophy & Evertson, Note 8). In summary, effective teachers encourage interactions where students are expected to participate and to be challenged but still be successful.

Organized instructional activities. The effective teacher organizes instruction to provide students with activities that are interesting and

meaningful and to use grouping patterns which fit the task. The effective teacher recognizes the basic importance of motivation for students. One teaching strategy associated with motivation is "relating class content to the interests of the students" (Emmer, Evertson, & Anderson, 1980). Effective teachers "follow prescribed curriculum" (Brophy & Evertson, Note 8), move briskly through that curriculum, especially with high ability students (Evertson, Anderson, & Brophy, Note 12), and rely heavily on "workbooks and textbooks" (Stallings & Kaskowitz, Note 15; Stallings, Note 16). In appropriate situations effective teachers use "special materials" which are matched to the ability level of the students, especially with low ability students (Emmer, Evertson, & Anderson, 1980; Brophy & Evertson, Note 8).

Most researchers have found strong positive associations between certain grouping patterns and student achievement. "Whole class" or "large group instruction" is the most prominent grouping pattern (Good & Grouws, 1979; Stallings & Kaskowitz, Note 15). In the report on Phase I of a project designed to teach basic skills in secondary schools, Stallings (Note 16) reports positive relationships for "small group instruction" and students taking turns "reading aloud." Strong results related to grouping were also found for ability grouping by Stallings, Needels, & Stayrook (Note 10). Here low ability students did better in homogeneously grouped classes where instruction was at a slower pace but fast enough to maintain interest.

In summary, effective teachers carefully organize instructional activities to both motivate students and provide appropriate practice in the lesson. They also teach most lessons to the whole class and use small groups only for particular instructional purposes or subjects.

Summary of Research on Teaching

This background of research on teaching from large-scale, classroom-based studies provides a profile of only one definition of an "effective teacher," where effectiveness is measured by student outcomes on standardized tests. In addition, the profile is limited to areas of teaching which have recently received heavy research emphases: learning environment, management of behavior, classroom instruction, and teaching style (as defined in this synthesis). While it is recognized that these areas do not form a complete picture of teaching, the findings indicate some teaching behaviors are associated with increased student achievement in mathematics and reading at the elementary school level. The effective teachers in these studies tended to establish a work-orientation in the classroom while maintaining a warm, supportive environment. They also were well-organized and placed much emphasis on management of the classroom in order to optimize the productive use of time. During class effective teachers stayed actively involved with students to prevent misbehavior and intervened promptly to stop misbehavior. When presenting new material many effective teachers used a systematic instruction plan which included gaining students' attention before beginning the lesson, making a clear presentation, allowing students to practice new skills, monitoring and providing feedback, assigning individual seatwork, and evaluating students' responses. Effective teachers generally interacted with the whole class during classtime and moved students through discussions at a brisk pace with a high level of student success.

These research findings support many common teaching practices and answer criticisms that educational research has no relationship to real classroom problems and situations. While there are other conceptions of good teaching which view teaching as an art or as a job requiring certain

philosophical or psychological orientations, the purpose of this review was only concerned with recent findings in classroom-based research and not the assumptions underlying this particular approach to the study of teaching. At present if school emphasis is on achievement in basic skills as measured by standardized achievement tests, then this research provides teachers with behaviors that facilitate increases in achievement and still allow adaptation to fit particular classroom needs. Finally, these findings are guidelines for increased effectiveness and are not intended to be foolproof recipes for teaching.

Research on the Process of Change

Given the stated teaching behaviors as the desired outcomes of a program of inservice training for teachers, the next logical step is the facilitation of change in teacher practice in the direction of greater incidence of the stated behaviors. An inservice teacher education program based on research findings regarding features of successful change efforts will be more conducive to that facilitation.

There are, to be sure, problems inherent in the formulation and testing of a strategy to alter teachers' pedagogical practices. Good (Note 17), among others, acknowledges the context effect issue. Ward and Tikunoff (Note 18) identify problems related to "working on" rather than "working with" teachers. Griffin (1979) characterizes some of the issues of evaluating teacher change efforts. Much of the research on school improvement and teacher change has focused upon complex curricular and staff innovations rather than upon alteration of specific teaching acts. The CTP intervention presents a strategy for teacher change in which the content has been drawn directly from findings from research on teaching studies which appear to be strongly related to desired student outcomes. This content is a complex of

behaviors rather than isolated and discrete ones. The delivery system for the content selected was formulated as a consequence of careful examination of and selection from recognized change studies.

Three widely and frequently cited research efforts provide extensive data regarding changing teacher practice: 1) the I/D/E/A five-year study of change in individual schools (Bentzen, 1974); 2) the Rand Corporation study of federal programs supporting educational change (Berman & McLaughlin, 1978); and, 3) the Concerns Based Adoption Model (CBAM) work on the implementation of innovations (Hall & Loucks, 1978). Particular emphasis has been placed upon Sarason's (1971) notion of institutional regularities, Goodlad and Klein's (1974) hypotheses regarding why change is blunted in schools, Bentzen's (1974) findings derived from the I/D/E/A study of school change, and Berman and McLaughlin's (1978) propositions about system characteristics which foster and support efforts to change. In addition, and related to the I/D/E/A findings and processes, potential strategies can be derived from organization development and practice.

The I/D/E/A Study

The findings of the five-year Study of Educational Change and School Improvements (SECSI) conducted by the Institute for Development of Educational Activities, Inc. (I/D/E/A) are the basis of significant intensive, clinical training for teachers and administrators. The central thesis of this study is that adults in schools must learn to help themselves. This means, according to Goodlad (1974), "that they must think together, plan together, decide together, and act together in dealing with problems inevitably inherent in schools. And they need help, support, and encouragement in doing so" (p. viii).

The intent of the SECSI project was to study change in schools. Eighteen elementary and secondary schools were joined in a self help League of Cooperating Schools with SECSI staff serving as helpers, supporters and encouragers in an attempt to better understand the change process. The study component revolved around understanding a school staff's receptivity to change.

The I/D/E/A study identified a recurring pattern of events that characterized staffs that were receptive to change. The events were dialogue, decision making, action, and evaluation (DDAE). The study found that individually competent teachers put together in a school will not automatically become a group that copes positively with changing demands on the school. When the group does work effectively the members talk about school issues (dialogue), act on the dialogue (decision making), follows through on decisions (action), and reflects on the effects of the action (evaluation). The presence of the DDAE process was an indication of the level of staff receptivity to change.

The earliest findings of the study confirmed that teaching "tends to be lonely, often dull, work ringed about by fears of the unknown that might result from changes" (Bentzen, 1974, p. 195). The study also found that increased interaction among schools helped alleviate that loneliness, dullness and fear. Staffs within the League Network were more willing to try something new because peers encouraged rather than censured each other when a staff experienced failure. Information from the study suggested that League schools came to hold certain expectations for the group and for themselves as League members. "League staffs were supposed to hold relatively non-traditional views about schooling; League staff were supposed to look

critically at what they were doing" (Bentzen, 1974, p. 197). Though not all schools met them, the expectations were there.

The study also suggests the difficulty of changing the interventionists' perception of what they should and should not do. "School staffs have been treated by interventionists with condescension, pity, scorn, and despair, but rarely with dignity" (Bentzen, 1974, p. 201).

The SECSI study proposes the peer group strategy as a means of effective change. The idea is to build and maintain group expectations so that the school staffs will, in turn, pressure their individual members to change in the desired direction. The peer group strategy is based upon the processes of dialogue, decision-making, action and evaluation as school persons work together on issues they consider to be important and situation specific. The principal feature of the peer group strategy is that teachers engage in conversation which focuses on professional issues about the school and classrooms. In these conversations, teachers and principals work together as colleagues to solve problems. The exchanges are bidirectional rather than hierarchical. School officials provide personal and intellectual support and provide technical assistance to school staffs. All aspects of the school setting are open for consideration with rewards for successes and acknowledgement of failures as "honest attempts" at school improvement.

A variety of specific activities may be utilized to facilitate the peer group system. These activities generally incorporate a strategy of dialogue, decision-making, action and evaluation in regard to school issues. These may include: Teachers observing one another, teachers convening and conducting development activities with each other, teachers calling upon administrators for assistance rather than principals engaging in self study. Additionally, school and community resources can be identified, school meetings conducted

which focus on substantive rather than procedural issues and support groups established within, as well as between schools. While the study certainly supports the value of this strategy it does not presume to generalize to all situations and it does not assert that the peer group strategy is the only intervention strategy that should be used in schools.

The School as a System

Goodlad (1975) synthesized findings of a five-year research project involving eighteen schools with some suggestions about the nature of successful change efforts. It was his belief that the success of change efforts was dependent upon an understanding of the impact which change efforts have on the interrelated whole or natural system of each school, rather than only on an isolated component of it. To assist in the conceptualization of schools as systems, a brief summary of Miles and Schmuck's (1971) earlier work identifying assumptions, features, and activities of systems will be useful. Central to this summary is their definition of organization development (OD) as a planned, sustained effort to apply behavioral science for system improvement, through the use of reflexive, self-analytic methods.

Assumptions. Eight assumptions are incorporated into the OD approach to understanding planned system change. Systems are comprised of complex sets of related elements, each of which has some impact upon the others. In addition, by changing the structure or functioning of a system, the individuals within it can be led to change their behavior. In turn, system members are the most appropriate persons who may serve to enhance a system's ability to cope.

In spite of the assumption that organizations are neither quickly nor easily changed, it seems that systems must develop increased coping abilities

if they are to successfully weather unanticipated problems. Since the "real" problem can therefore be understood in terms of organizational response to the unanticipated, persons outside the system may only assist organization members in solving problems.

Reflexive (in an interactive sense) and self-analytic methods are assumed to be more powerful stimuli for change than is the adoption of any marketed "packages" or "programs."

Features. Several characteristic aspects to the organization development perspective in approaching problem solving can be identified. First, the culture and/or climate of a system is of primary importance in identifying, analyzing and solving problems. Coinciding with this stance is the ongoing need to consider individuals in relation to the structure and functioning of the system; in other words, role definition as well as knowledge of individual performance are essential features of organization development.

Knowing what each system member is supposed to be doing and how well he/she is performing provides the basis for organizational problem analysis, but it is insufficient for system change to occur. With the assistance of persons such as consultants outside of the organization, system members characteristically engage in intensive and sometimes extensive problem-solving efforts. Quite often, confrontation of one member or members by other system members is a feature of the problem identification, analysis, and problem-solving process.

Activities. Several of the features discussed here are manifested in the activities which are conducted to accomplish organization development. Many vehicles or methods are available for the introduction of planned changes in systems; they may be employed singly or in combination to sustain

change efforts. Because of the assumption that system members are the most appropriate persons to work with in increasing a system's ability to cope, training and continuing education (particularly involving direct teaching and experience-based learning such as role playing, simulations, exercises, etc.) for system members are foremost among the activities used in organization development.

To maximize participants' benefits from these learning experiences, process consultants are often requested to observe, assist, and/or coach the activity. The consultant's key function is to provide ongoing feedback to individuals and groups about the nature of their interactions, decision-making processes, and so forth. Process feedback may prove especially helpful when system members and/or groups choose to confront each other about problems experienced by the system. These confrontations are data-based and therefore consist of an open exchange of concrete, highly-specific information, and not just emotional ventilation.

Collection and feedback of data are essential activities characterizing several phases of organization development. Systematically collected and reported information, as noted above, can provide a basis for understanding the status of an organizational problem. It is also useful in guiding the later efforts of problem solving and organizational planning. Finally, data collection is necessary to determine the degree of implementation of planned change, and the success of a change in meeting the system's increased coping needs.

Problem solving and planning for change implementation are two organization development activities which can occur in a variety of formats. For example, problem solving may occur through system members' holding brainstorming sessions, or through working conferences held by special task

forces assigned to study particular organizational problems. The latter may, as a function of their problem-solving, conduct techno-structural activities which focus upon potential alterations in the organizational structure of the system, the work flow, and possible means of accomplishing clarified organizational goals. All of these activities are intended to bring about several desired outcomes, which will be discussed in the next section.

Anticipated outcomes. Several process goals are expected to result from organization development efforts, some of which are more readily measured than others. For example, organizational outcomes include increased organizational "health" (since the system should have increased and/or more efficient coping abilities) and higher morale among system members. Associated with the increased coping ability of the system is the enhanced linkage between system means and ends: when there are close and logical relations between means and ends, fewer organizational resources (human and otherwise) are wasted. Related to efficient functioning of the coupling between processes and goals is the increased clarity of the organizational goals to the system members.

Among the members, increased clarity of roles and responsibilities throughout the organizational structure is another anticipated outcome of organization development efforts. With greater certainty about one another's jobs in the system, two other desired and anticipated outcomes become increasingly necessary: first, more open communication among system members, and second, systematic problem solving (which is implicitly facilitated by that communication). Given the overall desired result of a "healthier," more adaptive organization, it becomes possible for change to be formally incorporated into system existence.

The Rand Study

The four-year, two-phase Rand study provided survey data on 293 change-agent projects, and intensive case analyses of 29 projects (Berman & McLaughlin, 1978). The study analyzed the effects of specific federal policies on local change processes. The first phase focused on strategies and conditions promoting change in the schools; the second phase focused on factors influencing the sustaining of change. The findings strongly suggest the importance of the role of the teacher in the change process and indicate the significance of site-to-project effects in the process of mutual adaptation of the school and the intervention.

Using findings from both phases, the study described the local process of change in regard to initiating and sustaining innovative projects. The investigations found that few school districts in the sample group actually conducted a rational search for better ways to educate students. Rather, the selection process was more a "complex interplay among organizational forces, political pressures, persoral motivations, and educational concerns" (Berman & McLaughlin, 1978, p. 14).

The researchers found that each classroom, each school and each school system implemented a given innovation in different ways, and that in the process of the implementation both the innovation and the characteristics of the setting were changed. This process, termed mutual adaptation, resulted in a variety of adjustments to the project and in the acquisition of new attitudes and behaviors by the staff implementing the project, as the persons involved tried to make the project work for them in their own settings. Although the process of mutual adaptation did not assure the successful implementation of a project, it did increase the likelihood of that success. The researchers concluded that mutual adaptation was the only implementation

process leading to teacher change because the teachers changed only as they adapted the project's design to their own particular situation.

Study findings emphasize the fact that there is no single factor that guarantees successful educational change. What happens with a change effort depends on the interplay of the characteristics of both the change intervention and the setting to be changed.

Classroom organization projects and projects designed to include community involvement appeared to have a direct effect on promoting change in teacher practice. The cost of the project did not appear to be a factor in eliciting teacher change. Data from the study indicate that teachers rise to challenges, responding more positively to ambitious and demanding innovations than to mundane or routine projects. However, a more ambitious scope of a project did not automatically assure success. Projects that were more comprehensive (including many schools and most grades) tended to be less likely to produce teacher change. Teachers with many years on the job were found to be less likely to change their own practice.

One factor, however, did show a strong, positive relationship to all of the project outcome measures: a teacher's belief that the teacher can be of help to all students. The study referred to this belief characteristic as a "sense of efficacy" which represented the teachers' attitudes about their own professional competence.

The Rand research indicates that local staff development activities could significantly improve teacher practice. But the study underscores the importance of mutual adaptation and the influence of factors and characteristics of the local setting. Packaged and rigid training programs are contraindicated, as is an unthinking, uncritical adherence to generalizations. Berman and McLaughlin point out that even some strategies

which were clearly indicated by the study to be usually ineffective "due to their mismatch with the typical reality of school district life and with the dominant motivations and needs of teachers" (Berman & McLaughlin, 1978, p. 27) could be useful in atypical instances.

Powerful interactions between individuals and factors in the workplace are frequently noted. Craft knowledge supports the idea that what teachers do or do not do is determined by realities of the institutional setting as well as by the personal characteristics of the individuals. Successful implementation of innovations in terms of changing teacher practice in the desired direction seems to require both change on the part of the teacher and modification of the innovation in terms of idiosyncratic teacher and situational characteristics.

Findings of the Rand study (Berman & McLaughlin, 1978) firmly support this thesis. Mutual adaptation, defined in the Rand study as "the process by which the project is adapted to the reality of its institutional setting, while at the same time teachers and school officials adapt their practices in response to the project" (p. viii), was found to be "the only process leading to teacher change" (p. 17). Elaborating on this finding, the study report noted that if a project is

> applied uniformly or rigidly, it is unlikely that the new techniques will significantly or positively alter the teacher-student relationship. The development of new teaching behaviors within each classroom is a pragmatic, learn-by-doing process consisting of a step-by-step fine tuning of project design. Therefore, the process that fosters effective implementation and teacher change is one that promotes each teacher's ability, capacity, and motivation to accomplish this unique tuning (p. 17).

The Rand study identified effective implementation strategies that prompted mutual adaptation, warning that the strategies "obviously do not work if they are poorly executed, as was often the case when they were routinely applied" (p. 28).

Seven elements noted in the Rand study were found to have major, positive effects on project outcomes and continuation, provided they were well-executed (pp. 29-30). Each of these elements will be discussed briefly below.

Training for teachers appeared to be most effective when it was concrete, teacher-specific, and on-going. In contrast to many staff development or change strategies which depend upon theoretical or abstract conceptions as the bases for change, the Rand study found success to be related to activities which accounted for specific classroom practices, instructional operations, curriculum demands, and the like. Although this specificity was found to be a necessary component of a change strategy, it was also found necessary that teachers and others be given the opportunity to modify (adapt) the desired change according to their conceptions of how it would or would not "fit" particular settings.

Successful change was also characterized by classroom intervention in the form of technical assistance. This finding argues for local reallocation of resources such that classroom problems can be dealt with, not from afar, but by someone who is on site and who is aware of the problems and prospects contained in that site. It was found that the external consultant, more often than not unfamiliar with site-specific issues, was less effective in promoting change. In-classroom assistance, then, is a potentially powerful staff development strategy.

Successful teacher change was also associated with opportunities to observe, visit with, and be counseled by other teachers. It was noted by Rand staff that peers were especially successful in advising their colleagues about implementation problems to expect, proposing remedies to the problems, and creating a sense of efficacy on the part of teachers.

Regular project meetings also appeared to contribute to effective implementation of change. The regularity of the meetings did not stand alone, however. Content was an important factor. The more successful change attempts were accompanied by regular meetings which attended to substantive and practical problems rather than to administrative or procedural issues. These meetings, in addition to providing opportunities for the substance of the change to be discussed, also served as forums for feedback, sharing, and building staff morale. The meetings were more effective when they were held in a supportive school climate.

The Rand study also noted the importance of teacher participation in project decision making. In the projects demonstrating the highest degrees of change, the teachers expected to engage in the change were systematically involved in problem identification and solution formulation. The amount of energy expended on the project was associated with the degree of participation in what might be termed the "governance structure" of the project.

Support materials in successful change efforts were developed by persons in the setting. This appeared to result in local determination that the participants' input was valued and in a sense of local ownership of the change. Materials development also seemed to force participants to think more clearly and precisely about their activities and purposes than might have been expected.

Finally, the Rand study noted the positive effects which emerged when the building principal was a part of the training for implementation. Although conventional wisdom has always suggested that support from the principal was important for change, this study noted that when the principal was involved with the training along with teachers, there was a higher level of attention to the plans, purposes, activities, and outcomes of the implementation intentions.

The Concerns-Based Adoption Model

The Concerns-Based Adoption Model (CBAM) provides a structure for staff development planning which focuses on the process of change as a personal experience (Hall & Loucks, 1978, Note 19). The perceptions, feelings, motivations, frustrations, and satisfactions of teachers about an innovation are identified and classified according to a developmental scheme of stages. The process of change by which a person moves through these stages is attended to so that an innovation can be implemented. Concerns-based staff development recognizes and accepts as legitimate the concerns of the persons involved in the change process. Change is regarded as long term and developmental, and individuals are perceived to need support as they experience change. In this model any process or product that the teacher has not previously encountered is regarded as an innovation for that teacher.

Seven stages of concern through which individuals pass with regard to any innovation have been identified. They range from the lowest, which means that there is little concern and little awareness, through a general awareness, to concern about the personal effects of the innovation, on to concerns about the management and consequences of the innovation, then to a concern with the possibilities of collaboration in implementing the innovation, and finally to the highest stage where the concern is focused on

an exploration of the more universal benefits that can be gained from the innovation. Appropriate interventions intended to change teacher practice attend the specific concerns of individual teachers at each stage.

Summary of Research on the Process of Change

This overview of research on the process of change provides a description of various practices which have been found to be positively associated with the successful implementation of interventions. The descriptive listing is neither exhaustive nor absolute but is logically generalizable and predictable in terms of expected results.

Guided by these findings staff developers can select strategies for facilitating teacher change that are more likely to result in desired outcomes. Because of the complexity of both persons and content these findings cannot be rigidly applied as foolproof recipes. But, used intelligently as guidelines they can significantly increase the degree of success when an intervention is implemented.

From studies of school and teacher change it can be inferred that effective leadership will take into account (1) opportunities for teacher interactions focussed on professional issues, (2) provision of technical assistance to teachers, (3) adaptation of ideas and programs toward a "fit" with school and classroom regularities, (4) opportunities for reflection, and (5) focussed and precise (rather than general) attention on important school issues. These broad areas of leader behavior were more sharply defined in operational terms and presented as part of the CTP intervention in the form of a list of desired staff developer behavior (see Appendix A).

Summary

The intervention of this RITE study, Changing Teacher Practice, was based on these findings from research on teaching which defined the content and research on change which informed the delivery system.

This section has (1) provided an overview of the purposes of the Changing Teacher Practice pilot study, (2) noted the reasons why these purposes are reasonable ones in terms of recent research history, and (3) provided descriptions of research-derived content for staff development and research-derived description of possible strategies for staff development. From these last bodies of information, the content and processes of the intervention strategy to be tested were selected.

METHODS AND PROCEDURES

Overview

As discussed previously the CTP study consisted of an intervention with staff developers to provide them with strategies and content to improve the reading and mathematics instruction of elementary school teachers. To assess the impact of this intervention a treatment group-control group quasi-experimental design was utilized to determine outcomes at several different levels:

Level 1

RITE project staff worked with treatment group staff developers during the week prior to the beginning of the 1982-83 school year. The program covered information on effective teacher behaviors and strategies for their adoption.

Level 2

Treatment group staff developers designed and implemented inservice programs for teachers based on information received during the RITE intervention.

Level 3

Teachers who participated in treatment group staff development programs incorporated those effective teaching behaviors in their classroom teaching.

Level 4

Students who were taught by treatment group teachers would demonstrate on-task behavior (used as a proxy for achievement gain).

Extensive data collection procedures discussed elsewhere were developed to test a series of hypotheses about the effects of the intervention.

Hypotheses

The following hypotheses were proposed to examine the effects of the intervention.

Hypothesis 1

Treatment group staff developers will demonstrate more of the desired staff development behaviors than control group staff developers when doing inservice work with teachers.

Hypothesis 2

Treatment group teachers will exhibit higher frequencies of desired teacher behaviors than control group teachers.

Hypothesis 3

Between treatment and control groups of both staff developers and teachers, the frequencies of desired staff developer behavior will exhibit a correlation with desired teacher behavior.

Hypothesis 4

Treatment group students will exhibit greater on-task behavior as measured by the Student Engagement Rating protocol than control group students. (Because of the difficulties associated with collecting a true picture of academic gain of large numbers of students in 10 schools and 20 classrooms, on-task pupil behavior was used as a proxy for achievement.)

SITE AND PARTICIPANT DESCRIPTION

Site Selection and Description

In order to implement the intervention and conduct the study as planned, certain site characteristics were thought to be desirable. What follows is a brief discussion of the site characteristics that were considered necessary for conducting the proposed research.

Because RITE is part of a national research and development center, it is considered important that its research reflect, as much as possible, the realities of the nation's schools. In that a major national educational issue is the multi-cultural nature of the school population, the CTP study was implemented in a school system which reflected multi-cultural student and educator populations.

School improvement is not the sole responsibility of any one agency in the educational community. Teachers, administrators, higher education persons, and researchers come together to better understand the ways and means of schooling. Therefore, the RITE study was conducted in a school setting where there was an active set of professional associations (teacher organizations, administrator organizations, etc.) and some link between the school system and other institutions with similar purposes (e.g., colleges/universities).

In that the study was a planned intervention into the role of the staff developer, a setting with a demonstrated history of supporting staff development efforts was sought out. This did not mean that persons in the setting had to have the title "staff developer" but that persons had to have the responsibility for working with teachers toward the ends of effective teaching and school improvement. A further desired setting characteristic was the evidence of support for this function in the form of allocated resources. A limited budget provided release-time for teachers and administrators.

The school system also had a demonstrated history of attending to the issue of school improvement. Although we believed the study described here had promise to bring about changes at several levels of the school organization, the RITE staff was aware of the necessity that any change effort be placed in what might be called a "receptive" environment. This meant that the school policies and institutional climate were amenable to change and to reflection. It was not the purpose of this study to put into place all of the antecedents to school improvement activities.

The persons who agreed to participate in the study, especially staff developers, had some flexibility in terms of the use of their time and in terms of their assignments. This flexibility was part of the agreement between RITE and the officers of the participating school system.

It was also desirable that the staff development activities in the participating system take place at the individual building level. This feature corresponded to several of the tenets of school change strategies and, as well, provided the research team with a more economical way to accomplish the logistics of data collection.

Finally, and most importantly, system personnel at staff developer and teacher levels agreed to participate in the study. This agreement was supported by policy level persons in the school system and in the professional associations. Although participants were offered a stipend for their participation beyond regular school duties and functions, the RITE staff wanted to insure willing participation and system support for that participation.

Participant Selection

A representative group of ten individuals who were responsible for working with teachers in an effort to promote more effective teaching and school improvement in the selected district were identified. Each was assigned to one group of five, matched as closely as possible according to role, SES of school, prior experience, years in the position, and reputation for effectiveness. One of each pair was randomly assigned to the treatment or control condition at the staff developer level.

Two teachers from among the group with whom each staff developer worked were selected by staff developers. Those ten teachers working with the staff developer treatment group constituted the teacher treatment group, the other ten constituted the teacher control group. (One teacher in the treatment group received a new teaching assignment in a different school after the first observation period. A replacement was found among teachers working with the treatment staff developer.)

Students of the treatment group teachers constituted the treatment group students. Students of control group teachers constituted the control group students.

Participant Description

The study participants received a two-page demographic questionnaire at the start of the school year, and 20 of the 21 teachers and all 10 staff developers responded. There were occasional items left unanswered or, in other cases, multiple responses to an item. These are duly noted in Tables 1-4 for ease of interpretation. The reader should also be aware that the participant identification numbers across the top lines of Tables 1-4 have been assigned to represent individual study participants only in these tables. Other tables in this report will represent the same individuals with different randomly assigned numbers (i.e., numbers will not correspond from one table to another) so as to further ensure participants' anonymity.

Items on the questionnaire requested several types of information from the respondents. In addition to standard demographic information (age, sex, ethnicity, and so on), participants were asked to describe their formal education, their professional association memberships, additional responsibilities, and their current and prior teaching assignments. Results displayed in Tables 1-4 are grouped by participant role (treatment group staff developers, control group staff developers, treatment group teachers, control group teachers).

Demographics

Treatment group staff developers. As can be seen from Table 1, all the staff developers in this group were over 30 years of age and had Masters' degrees. Four of the five were Anglo, and three of the five were women. Four staff developers had earned credits beyond their degrees, while two of them were actively completing an advanced degree. Three staff developers were salaried as resource teachers, and the other two as principals of elementary schools. The staff developers varied somewhat in the number of

Table 1. Personal/Professional Characteristics of Treatment Group Staff Developers

ID #	01	02	03	04	05	
Age Bracket	30-39	30-39	40-49	30-39	60-over	
Sex	F	M	M	F	F	
Ethnicity	Black	Anglo	Anglo	Anglo	Anglo	
Degrees Held	1971-A.A., Gen Off., 1973-B. A., Fine Arts 1977-M.A., C&I	1973-A.B., Soc. 1979-M.A., C&I	1952-A.A. 1955-B.A., Elem. Ed., 1963-M.A., Elem. Administration	1970-B.A., Social Science, 1983-M.A., Ed. Admin.	1945-B.A., Psych 1969-M.A., Admin & Supervision	
Credits Beyond Degrees	51	B.A. + 90 M.A. + 5	18	B.A. + 65	0	
Current Degree Work	Yes, Leadership Development	No	No	Yes, Educational Administration	No	
Current Job Title	Resource Teacher	Resource Teacher	Elementary School Principal	Resource Teacher	Elementary School Principal	
Years at Current Position	2	2	7	1	8	
Professional Memberships	——	Local, State, and National Education Association	Local/State Administrators Association	Local Council for Administrative Women in Education	Local/State Administrators Association, National Education Association	
Additional Professional Responsibilities	——	——	School District Committee & Council Memberships (2)	School District Council Memberships (2)	——	
SES of Most Students in Current School	Low-Middle-High (Assigned schools cover the range)	Low	Low	Low	High	
Ethnicities of Students in Current School (approx. %)	N/A (Schools vary)	25% Anglo 10% Asian 30% Black 35% Hispanic 0% Other	23% Anglo 29% Asian 34% Black 13% Hispanic 0% Other	10% Anglo 10% Asian 40% Black 40% Hispanic 0% Other	76% Anglo 20% Asian 2% Black 2% Hispanic 0% Other	
Approximate Size of Current School	N/A (Schools vary)	Medium (500 - 1500)	Medium (500 - 1500)	Medium (500 - 1500)	Medium (500 - 1500)	
Years of Prior Classroom Teaching	7	7	9	7	7	$\bar{x}$ = 7.4
Grades Taught	3-5	4-6	4-6	2-6	3-5	
# Schools Where Taught	2	2	3	2	1	

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years they had spent in their current roles, ranging from one to eight years with a mean of four years. Four of the five staff developers in the treatment group were members of various professional organizations, and two of these persons had other, additional professional responsibilities beyond their usual position specifications.

Staff developers described the schools in which they worked, also. One of the five staff developers worked in several schools, and these varied across the continuum of available descriptors for socioeconomic status (SES) and ethnicities of school children and school size. Three of the school-based staff developers were in medium-sized schools with children from low SES families of varying ethnicities (minority dominant), and the fourth was in a medium-sized school populated with predominantly Anglo children from high SES families.

The treatment group staff developers were alike in the nature of their prior classroom teaching experience. Four of the five had taught for seven years, and all five taught at the elementary level (mostly in upper rather than primary grades). Each person's teaching experience was obtained in from one to three different schools, most of these within their present school district.

Control group staff developers. Data from these individuals are displayed in Table 2. As was the case with their treatment group peers, these staff developers were all over 30 years of age. All but one had a Masters degree, and that person was working towards completion of one. All five control group staff developers were Anglo; four of the five were women. As with the treatment group, four of the five staff developers had earned credits beyond their most recent degrees. Three in this group were salaried as resource teachers, the remaining two as elementary school principals. One

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Table 2. Personal/Professional Characteristics of Control Group Staff Developers

ID #	06	07	08	09	10	
Age Bracket	60-over	30-39	40-49	50-59	50-59	
Sex	F	F	F	M	F	
Ethnicity	Anglo	Anglo	Anglo	Anglo	Anglo	
Degrees Held	1942-B.S., Art 1968-M.A., Education	1968-B.A., Social Sciences	1958-B.A., Elem. Ed., 1978-M.A., Educator, 1982-M.A., Administration	1950-A.B., Economics 1956-M.A., Elem. Education	1953-B.S., Elem. Education 1977-M.S., School Administration	
Credits Beyond Degrees	30	39	46	30	0	
Current Degree Work	No	Yes Administration	Yes Administration Credential	No	No	
Current Job Title	Elem. School Principal	Resource Teacher	Resource Teacher	Elem. School Principal	Resource Teacher	
Years at Current Position	4	2½	2	22	2	
Professional Memberships	Honorary Society for Women Educators	——	——	Local/State Administrators Association	Local Teachers Association	
Additional Professional Responsibilities	——	——	——	——	——	
SES of Most Students in Current School	Middle	Middle	Low	Low	Middle	
Ethnicities of Students in Current School (approx. %)	88% Anglo 10% Asian 0% Black 2% Hispanic 0% Other	38% Anglo 0% Asian 60% Black 2% Hispanic 0% Other	1% Anglo 1% Asian 40% Black 58% Hispanic 0% Other	15.5% Anglo 18.0% Asian 46.6% Black 19.4% Hispanic .5% Indian	No Response	
Approximate Size of Current School	Small (500 or less)	Medium (500 - 1500)	Medium (500 - 1500)	Medium (500 - 1500)	Medium (500 - 1500)	
Years of Prior Classroom Teaching	19	14	12	4	15	$\bar{x}$ = 12.8
Grades Taught	2-5	1-4	K-2 (sub K-6)	4-6	1-4	
# Schools Where Taught	8	3	2 + district wide substituting	1	4	

person in the control group had been in his current position substantially longer than had the others (22 years). Three of the five control group staff developers were members of professional organizations, and none described themselves as having unusual, additional professional responsibilities.

The staff developers' descriptions of the schools and children that they served revealed some variation. Three said that the children in their schools were from middle income families, while two indicated that the children were from low SES homes. One staff developer did not describe the ethnicities of pupils in the school, one other worked in a small school with predominantly Anglo children. The remainder worked in medium-sized schools, three of which were minority-dominant.

When the control group staff developers described their prior classroom teaching experience some variation emerged. The range was from four to nineteen years in the classroom. In addition, the range of grade levels taught by the control group was slightly larger--although still all at the elementary level--and four of the five had taught in the primary grades (K, 1, 2). There was also greater variation in the number of schools in which the staff developers had taught, with a range from one to eight.

Treatment group teachers. Demographic data for teachers who worked with staff developers in the treatment group are presented in Table 3. It should be noted that eleven individuals are listed. This occurred because one teacher was transferred in October to another school with a non-participating staff developer; therefore, a replacement was recruited. In this instance (unlike other data subsets), however, data were available for all eleven teachers.

Teachers working with treatment group staff developers were between 20 and 50 years of age. Two were male, nine were female. One was Hispanic and

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Table 3. Personal/Professional Characteristics of Treatment Group Teachers

ID #	41	42	43	44	45	46
Age Bracket	30-39	30-39	30-39	40-49	30-39	30-39
Sex	F	F	M	M	F	F
Ethnicity	Anglo	Anglo	Anglo	Anglo	Anglo	Hispanic
Degrees Held	1967-B.A., Soc Science 1976-M.A., C&I	1967-B.A., Marketing, B.A., Liberal Studies	1973-A.S. 1976-A.B., Liberal Studies	1957-B.A. Social Studies	1969-B.A., Soc. Science, 1977-M.A., Education	1980-B.A., Liberal Studies
Credits Beyond Degrees	B.A. + 90	30	43	35	B.A. + 60	0
Current Degree Work	No	Yes, Curriculum & Instruction	Yes, Special Education (Gifted)	No	No	No
Current Grade Level Assignment	4/5	2	5/6	6	5	3-bilingual
Years at Current Position	3	2½	5	6	4	1
Professional Memberships	——	——	State Teachers Association, National Education Association	Local/State Teachers Association, National Education Association	Local Teachers Association	——
Additional Professional Responsibilities	Site representative - women's opportunities	Exchange teacher for Title VII program	Math/P.E. coordinator for school	Site representative for local teachers association	School-based Committees	——
SES of Most Students in Current School	Low	Low	Low	Low	Low	Low
Ethnicities of Students in Current School (approx. %)	35% Anglo 22% Asian 11% Black 32% Hispanic 0% Other	45% Anglo 10% Asian 10% Black 35% Hispanic 0% Other	(see entry for # 44)	25% Anglo 20% Asian 30% Black 25% Hispanic 0% Other	25% Anglo 21% Asian 33% Black 20% Hispanic 0% Other	20% Anglo 30% Asian 20% Black 30% Hispanic 0% Other
Approximate Size of Current School	Medium (500 - 1500)	Medium (500 - 1500)	Medium (500 - 1500)	Medium (500 - 1500)	Small (500 or less)	Small (500 or less)
Years of Prior Classroom Teaching	15	2½	6	26	14	2 3/4
Grades Taught	2-5	2	5-6	5-6	2-6	K-3, 6
# Schools Where Taught	1	2	2	6	2	3

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Table 3. Personal/Professional Characteristics of Treatment Group Teachers, continued

ID #	47	48	49	50	61	
Age Bracket	30-39	30-39	30-39	30-39	20-29	
Sex	F	F	F	F	F	
Ethnicity	Anglo	Anglo	Anglo	Anglo	Anglo	
Degrees Held	1970-B.A., Soc Science 1975-M.A., C&I	1971-B.A., Soc. Science 1981-M.A., Education	1967-B.S., Elem. Education, 1975-M.A., Elementary Education	1969-B.A., Soc. Science 1979-M.A., Reading	1975-B.S., Elem. Education 1980-M.A., Education	
Credits Beyond Degrees	B.A. + 90	B.A. + 40	30	3	0	
Current Degree Work	No	No	No	No	No	
Current Grade Level Assignment	2	5	4	1	5/6 Gifted	
Years at Current Position	7	1	3	2	0	
Professional Memberships	——	Local/State Teachers Association, National Education Association	——	Local Junior League	Local/State Teachers Association, Local Math Council	
Additional Professional Responsibilities	——	——	——	——	——	
SES of Most Students in Current School	Low	Low	High	High	(See entry for # 45)	
Ethnicities of Students in Current School (approx. %)	0% Anglo 0% Asian 62% Black 32% Hispanic 5% Indochinese	(See entry for # 47)	90-95% Anglo 5-10% Asian 0% Black 0% Hispanic 0% Other	83% Anglo 13% Asian 2% Black 2% Black 0% Other	(See entry for # 45)	
Approximate Size of Current School	Medium (500 or less)	Medium (500 - 1500)	Small (500 or less)	Medium (500 - 1500)	(See entry for # 45)	
Years of Prior Classroom Teaching	7	5	16	13½	6	
Grades Taught	2-3	6	1-4	K-4	3-6	
# Schools Where Taught	2+ district wide substituting	1	4	3	3	

the remaining ten were Anglo. Seven of the teachers had Masters' degrees; two others were working towards completion of Masters' degrees. Six held Bachelor's degrees in Social Science or Social Studies.

In describing their current work, at least one teacher reported working at each of the elementary grade levels (1-6), with four in primary level (1-3) classrooms. The teachers had been working at these grade level assignments from zero to seven years ($\bar{x}$ = 3.1). Six of the eleven reported belonging to various professional associations at the local, state, and/or national level, and five reported having responsibilities beyond classroom teaching (typically involving school committee work and/or being subject/grade level coordinators). Eight of the eleven teachers described the majority of students in their schools as coming from low SES families; two said their students were from high SES families; and one did not respond to the question. Also, two teachers indicated that students in their schools were predominantly Anglo; the remainder indicated that their schools were minority-dominant (except for two who did not respond to the question). Seven teachers reported working in medium-sized (500-1500 pupils) schools, whereas three said they were in small (500 or fewer pupils) schools; one teacher did not answer this item.

When describing their prior classroom teaching, the teachers reported having from 2½ to 26 years of experience. All of them had taught exclusively in elementary grades (K-6). Furthermore, the individuals had obtained this experience in as many as six different schools.

Control group teachers. Information on the control group teachers is presented in Table 4. One teacher in this group did not return a questionnaire. Of those who did respond, the teachers who worked with control group staff developers ranged in age from 20 to 60. Three men and

Table 4. Personal/Professional Characteristics of Control Group Teachers

ID #	51	52	53	54	55	56
Age Bracket	50-59	30-39	30-39	20-29	30-39	30-39
Sex	F	F	F	M	M	M
Ethnicity	Anglo	Anglo	Anglo	Anglo	Anglo	Anglo
Degrees Held	1961-B.S., Elem Education	1973-B.A., Soc. Science	1971-A.S., Nursery Education, 1973-B.S., Elementary Education, 1978-M.S., Reading	1978-B.A., Elem. Education	1970-A.A., Lib. Arts, 1973-B.A., Geography	1966-B.A., Biology 1973-M.A., Ed. Technology
Credits Beyond Degrees	0	6	0	0	6	M.A. + 90
Current Degree Work	Yes, Education	No	No	No	No	No
Current Grade Level Assignment	3	2	2	6	6	5
Years at Current Position	5	7	3	1	1	0
Professional Memberships	——	——	——	Local Teachers Association	——	Local/State Teachers Association, National Ed. Association
Additional Professional Responsibilities	——	——	——	School Committee Work	School Committee Work and Grade Level Advisor	Media Representative
SES of Most Students in Current School	Middle	Middle	Low	Middle	Low	Low
Ethnicities of Students in Current School (approx. %)	85% Anglo 10% Asian 2% Black 3% Hispanic 0% Other	85% Anglo 10% Asian 2% Black 3% Hispanic 0% Other	(See entry for # 7)	(See entry for # 7)	5-10% Anglo 0% Asian 45% Black 45% Hispanic 0% Other	20% Anglo 0% Asian 40% Black 40% Hispanic 0% Other
Approximate Size of Current School	Small (500 or less)	Small (500 or less)	Medium (500 - 1500)	Medium (500 - 1500)	Medium (500 - 1500)	Medium (500 - 1500)
Years of Prior Classroom Teaching	5	8	9	3	2	15
Grades Taught	3	1-3	2-4, 6	2-6	PreK, 3-4, 6	6
# Schools Where Taught	1	5	5	4	2	4

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Table 4. Personal/Professional Characteristics of Control Group Teachers, continued

ID #	57	58	59	60		
Age Bracket	No data	30-39	40-49	50-59		
Sex	No data	F	F	F		
Ethnicity	No data	Anglo	Black	Anglo		
Degrees Held	No data	1972-B.S., Soc. Science, 1980-M.A., Education	1971-B.A., English 1973-M.Ed., Elementary Ed.	1959-B.S., Ed. 1978-M.A., Ed.		
Credits Beyond Degrees	No data	75	15	18		
Current Degree Work	No data	No	No	No		
Current Grade Level Assignment	No data	2	5	2		
Years at Current Position	No data	2	11	12		
Professional Memberships	No data	National Education Association	——	Local/State Teachers Assoc., National Education Assoc., Area Reading Assoc.		
Additional Professional Responsibilities	No data	——	——	School Committee Co-chair		
SES of Most Students in Current School	(See entry for # 58)	Low	Middle	Middle		
Ethnicities of Students in Current School (approx. %)	(See entry for # 58)	10% Anglo 20% Asian 65% Black 5% Hispanic 0% Other	80% Anglo 10% Asian 6% Black 4% Hispanic 0% Other	70% Anglo 20% Asian 6% Black 4% Hispanic 0% Other		
Approximate Size of Current School	(See entry for # 58)	Medium (500 - 1500)	Medium (500 - 1500)	Medium (500 - 1500)		
Years of Prior Classroom Teaching	No data	5	11	19		
Grades Taught	No data	1-2	1-5	1-3		
# Schools Where Taught	No data	1	2	12		

six women were in the group. One of the teachers was Black, the other eight were Anglo. Five of the teachers reported having Masters' degrees, and one of the remaining teachers was working towards completion of a Masters'. Five also indicated having obtained credits beyond their degrees.

The control group teachers' descriptions of their current placements were largely similar to those of the treatment teachers. Respondents were working at assignments in grade levels 2-6, with five of these in primary grades (2-3). They had been teaching at these levels from zero to twelve years. Four of the nine indicated that they were members of local, state, and/or national level professional associations, and four also reported additional professional responsibilities beyond their classroom teaching. Four teachers described the majority of students in their schools as being from low SES families, while the remaining five had students from middle SES families. Four teachers said they were in schools with mostly Anglo children; three teachers did not describe the ethnicities of the school children; and the remaining three were in predominantly minority schools. Seven teachers reported working in medium-sized schools (between 500-1500 pupils) and two said they worked in small schools (500 or fewer students).

The teachers varied somewhat in the amount of prior experience they had, ranging from 2-19 years in the classroom. All had taught in the elementary grades, and one teacher indicated having had experience with pre-kindergarten children. The individual control group teachers had worked in from one to as many as 12 different schools.

Participants Beliefs Regarding Their Own and Their Students Abilities

All participating teachers answered open-ended questionnaires at the beginning of the school year in addition to the demographic questionnaire.

The open-ended questionnaires asked, among other things, whether the teachers were confident of (1) their ability to teach the curriculum, (2) their ability to teach all students, and (3) their students' abilities to learn the curriculum. Thus, it was hoped to have some notion of overall confidence brought to the teaching setting. The answers to these questions were rated by two independent raters with 80% agreement. The results of the Mann-Whitney U test indicated that the ratings for treatment and control teachers were not significantly different at the .05 level. In other words, the entering characteristics of the two groups, at least in the area of expressed confidence in teaching abilities, were comparable at the beginning of the study.

Summary

Similarities within and across the various role groups participating in the study appear to outnumber observed differences. The staff developers in both treatment and control groups were over 30 years of age; all but one had a Masters' degree (and that exception was nearing completion of a Masters'). Each group of staff developers consisted of three resource teachers and two school principals; all but one in each group were school-based. All staff developers had prior classroom teaching experience at the elementary level. The treatment and control group teachers showed similarities as well. For both groups, most were Anglo women, and at least half the teachers in each group had Masters' degrees. Roughly half the teachers in each group were in primary classrooms, and about half in each group belonged to professional associations. Seven teachers in each group reported working in medium-sized schools. Also, the teachers responded in like manner (no statistically significant differences) to the open-ended questionnaires about their teaching abilities and the abilities of their students.

Some differences were observed, however. Four of the five control group staff developers had more teaching experience and two had taught in more schools than those in the treatment group. Also, the range of years that control group staff developers had been in their current positions was greater than the range of years of treatment group members (2-22 versus 1-8). More control group staff developers than treatment group ones reported working in schools with children from middle SES families. Among the teachers, treatment group teachers reported having more graduate credits than did control group teachers, and about 1½ more years of overall teaching experience. Those in the control group, however, reported having an average of 1½ years more experience in their current placements than did those in the treatment group.

In conclusion, general comments regarding the study participants and their personal/professional characteristics may be made. First, there appeared to be more similarities than differences within and across role groups as far as personal characteristics and professional backgrounds were concerned. Second, the overall professional caliber of the participants is fairly high, as the majority report having substantial prior classroom experience, advanced degrees, and credits beyond degrees. Finally, in spite of some apparent diversity in the particular school settings where these people worked, the teachers expressed equal confidence in their own abilities to teach all students and of their students' abilities to learn.

Williams, E. Organizing and managing the elementary school classroom (R & D Report 6060). Austin, TX: The University of Texas at Austin, The Research and Development Center for Teacher Education, 1981. (Note 22)

The first presenter was responsible for the entire first day. Her responsibilities consisted of sharing a list of research based desired teaching behaviors, and training staff developers to recognize these behaviors in classroom settings. The teaching behaviors were derived from research on teaching studies and were related to learning environment, management of student behavior, classroom instruction, and teaching style. (A complete description of these selected behaviors and the rationale behind their selection is contained in Barnes' report on teaching findings, Note 1).

Participants were then asked to identify these behaviors in two narrative transcriptions of actual classroom settings and in two videotapes of teachers in the process of instruction. Discussions and clarifications followed each practice session.

Day 2. The second day of the intervention was devoted solely to how staff developers might serve as change agents in their respective schools. Following a review of the first day's activities, the objectives of the study were again discussed and clarified. A diagram was used to explain the overall purpose of the study (see Figure 3).

Findings were shared from studies related to the facilitation of change in teacher practice. Three general areas related to desired staff development behaviors were addressed: (1) mutual adaptation; (2) organizational development; and, (3) support networks. (For a complete discussion of these three staff development concepts see Edwards, Note 2). Each change strategy had been found to be effective in producing desired

(Note 6)

3. Barnes, S.G. Synthesis of selected research on teaching findings (R & D Report 9009). Austin, TX: The University of Texas, Research and Development Center for Teacher Education, 1981. (Note 1)
4. Good, T.L., & Grouws, D.A., Beckerman, T., Ebmeier, H., Flatt, L., & Schneeberger, S. Teachers Manual: Missouri Mathematics Effectiveness Project (NIE-G-770003). Columbia, MO: University of Missouri, September, 1977. (Note 20)
5. Barnes, S. Observer training manual for the Changing Teacher Practice study (Revised manual, R & D Report 9050). Austin, TX: The University of Texas, Research and Development Center for Teacher Education, 1983. (Note 21)
6. Information for Participants
7. Journal Guidelines
8. Selections from "Useful Research for Staff Development: An Eclectic Approach," a paper prepared by G. A. Griffin for the Title I Seminar for the Central States, Austin, Texas, January, 1982. (Note 4)
9. Information dealing with the Concerns-Based Adoption Model (CBAM) and Stages of Concern (SoC) to be presented on Day 3.
10. Daily Agendas for the first three days of the training week
11. Changing Teacher Practice Workbook
12. Desired Teaching Behaviors
13. Desired Staff Developer Behaviors
14. Vouchers for participants in the study
15. Evertson, C., Emmer, E., Clements, B., Sanford, J., Worsham, M., &

Design

The typical research design might look like the one in Figure 1.

Figure 1. Conventional Research Design.

Independent Variable	Dependent Variable
RITE Staff Developer Treatment	Staff Developer Behavior

Because RITE was concerned with the effects of the staff developer behavior upon teachers with whom they worked and with the effects of the teacher behavior upon pupil outcomes, the independent-dependent variable relationship was conceptualized as shown in Figure 2.

Figure 2. RITE Changing Teacher Practice Research Design.

Independent Variable	Dependent Variable	Independent Variable	Dependent Variable
RITE Staff Developer Treatment	Staff Developer Behavior	Teacher Behavior	Pupil On-Task Behavior
	Independent Variable	Dependent Variable	

The RITE staff expected change in staff developer behavior (dependent variable) and, further, as a consequence of staff developer behavior (now considered an independent variable) teachers were expected to behave in certain ways (dependent variable). Likewise, RITE expected teacher behavior (now an independent variable) to affect pupil outcomes (dependent variable).

Intervention

This study was concerned with the effects of staff developer behaviors upon teachers with whom they work and with the effects of teacher behaviors upon pupil outcomes. In order to increase their skills, staff developers were given one week of intensive training which focused on findings from research on effective teaching practice, and on the process of teacher and school change.

The training week was conducted in a conference room at a hotel near the field site. Each day's sessions were scheduled to last from 9:00 a.m. until approximately 3:30 p.m. The format for the first three days of the training week consisted of researchers sharing information with the participants, while the last two days were devoted to planning for implementation. The following section briefly describes each day of the training week. (For a more detailed account of the intervention, see Appendix A).

Day 1. Four members of the Research in Teacher Education (RITE) staff, the director of continuing education in the selected school district and the five staff developers who were assigned to the treatment group were present on the first day of training.

Participants were provided with the following materials:

1. Edwards, S. Changing teacher practice: A synthesis of relevant research (R & D Report 9008). Austin, TX: The University of Texas, Research and Development Center for Teacher Education, 1981. (Note 2)
2. Good, T.L. Classroom research: What we know and what we need to know (R & D Report 9018). Austin, TX: The University of Texas, Research and Devlopment Center for Teacher Education, 1982.

DESIRED OUTCOMES	TARGET GROUP
Increased On-task Behavior of Students	students
leads to ↑	
More Effective Teaching	teachers
leads to ↑	
More Effective Use of Teacher Change Strategies	staff developers
leads to ↑	
More Effective Use of Research Findings	RITE staff

Figure 3. The Changing Teacher Practice Strategy.

results when it was part of a larger, integrated whole (Edwards, Note 2). For planning, learning, observing, and descriptive purposes, however, a list of specific staff developer behaviors, derived from the research literature related to teacher change, was provided for the staff developers. (See Appendix A for this list.)

Participants were asked to list materials they might need to facilitate change in teachers' behaviors or simply to carry out the staff development of their teachers in the best way possible. Participants were informed that all reasonable requests for materials would be met by the RITE staff. The participants were asked to be sensitive to possible rules, regulations, and/or situations that might impede their work with teachers. If there was an existing practice that tended to interfere with their work with teachers, the RITE staff would attempt to help them devise a means to remove that obstacle.

The final hour of the second day of training was devoted to an implementation activity and a questionnaire that pertained to the third day of training. For the implementation activities, participants were asked to combine their knowledge of desired teacher behaviors and desired staff developer behaviors and respond to a "Changing Teacher Practice Workbook" (Appendix A, Attachment 6). Participants were then asked to complete the Change Facilitator Stages of Concern Questionnaire.

Day 3. A researcher who is expert in the use of the Concerns-Based Adoption Model (CBAM) from the Research and Development Center for Teacher Education was responsible for the third day of training.

The CBAM researcher helped the participants to (1) understand the process of change, (2) correctly diagnose individuals' Stages of Concern (SoC) and Levels of Use (LoU) of innovations, and (3) plan for effective

interventions to bring about desired change. (For more detailed information on the CBAM model see Hall, Wallace, & Dossett, Note 23 and Hall, George, & Rutherford, Note 24.)

Through the use of slide-tape presentations, and application tasks (i.e., given this situation, what would you do?) the presenter guided the participants toward an understanding of the process of change. Participants then interpreted profiles of individuals and institutions involved in the process of change. These exercises served as examples that helped participants diagnose the concerns of individuals involved in change and identify appropriate interventions. In addition, participants were introduced to the concept of "Levels of Use" (LoU) of an innovation. Previous research results were shared, activities worked through, and discussions conducted regarding the applicability of the Levels of Use (LoU) concepts in each of the participants' contexts.

Day 4 and 5. The fourth and fifth day of training were devoted to planning for site implementation. Participants again worked toward completing their Changing Teacher Practice Workbooks. RITE staff was available for guidance, advice and/or interaction. In addition, the RITE staff asked each of the participants the reasons for each of the activities and decisions reported in the "Changing Teacher Practice Workbook." The interviews were designed to determine the extent to which each staff developer was making conscious use of the findings from research, which had been shared with them throughout the course of the week.

Finally, the RITE program director offered concluding remarks and thanked the staff developers for their participation.

Instruments

Staff developers' journals of interactions with participating teachers. Staff developers were asked to keep a written account of each staff development interaction with participating teachers. They were asked to include, as a minimum, information about the type of interaction, the content, and outcomes. (See Appendix A, Attachment 2, Journal Guideline Questions.) Inclusion of other relevant information not specifically requested in the guidelines was encouraged as well.

Participating teachers' journals of interactions with staff developers. Participating teachers were also asked to keep a written account of each interaction with their staff developer. They were asked to include, as a minimum, information about the type of interaction, the content and outcomes. (See Appendix B, Journal Guideline Questions.) Inclusion of other relevant information not specifically requested in the guidelines was encouraged.

Barnes Teacher Observation Instrument (BTOI). Because the content for the inservice intervention was derived from recent research studies, the RITE staff turned to those original sources for instruments to use in the proposed study. After examination of some of these instruments, several concerns were expressed by the research team. In that the inservice intervention would involve recommendation of specific teaching behaviors, RITE needed a low inference means to measure the occurrence or nonoccurrence of these behaviors in classrooms. Many of the existing instruments provided information which called for higher inferences on the part of the observer. Often the instruments took the form of a rating scale where observers indicated their judgments about a teaching variable. For example, the variable might be a qualitative one, such as "enthusiasm" or "clarity." The observer then rated the observed teacher as possessing a certain degree of "enthusiasm" or

"clarity." After extensive discussion, the RITE staff decided to design an instrument to measure teaching behaviors with as little inference as practical and possible.

The first step in the design of a new instrument was essentially a content analysis of the manuals used in previous studies to observe and/or train teachers in desired behaviors. Definitions, concepts, and prescriptions were examined to determine what specific teaching behaviors contributed to that component. A list of teaching behaviors generated as a result provided specific actions to look for in classrooms.

The resulting observation instrument, the Barnes Teacher Observation Instrument (see Appendix C), was used by RITE staff members and other trained observers to observe classroom teachers for evidence of the desired teaching behaviors. These observations focused on several categories of teaching behaviors: planning and preparation, presentation of content, interactions, conducting practice, conducting seatwork, holding students responsible for assignments, organizing the classroom, presentation of rules or procedures, holding students responsible for behavior, and reacting to student behavior.

The record of observed teacher behaviors documents the frequency of desired behaviors, as well as the naturally-occurring sequences of these behaviors. After training in the use of the instrument, a classroom observer notes the occurrence of the effective behaviors on a coding sheet. The coding sheet tallies are then transferred to magnetic tape for analysis.

To further refine the BTOI for future research use, a factor analysis using the SPSS factor analysis subroutine (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975) was performed (see Appendix C, Attachment 1).

Pre-observation teacher contact. A pre-observation contact was made by the respective observer of each teacher in order to confirm the arrangements, date, and time for the scheduled observation (Appendix D).

Demographic questionnaire. This two-page structured questionnaire (see Appendix E) consisted of 16 items. The first three items pertained to the participants' personal characteristics: sex, age bracket, and ethnicity. Remaining items requested information about (1) the respondents' professional background, (2) current professional status/job title, and (3) the settings in which the respondents worked, both previously and at present. Thus, questions were asked about, for example, their years of previous classroom teaching; years in current position; where and when college degrees were obtained and in what areas of concentration; additional professional responsibilities; memberships in professional organizations; and the socioeconomic status (SES) and ethnicities of students in the schools where these individuals worked.

Student Engagement Ratings (SER). To provide a "snap-shot" of classroom activity during the observations, observers recorded information at 10 minute intervals on the student engagement rating form. That information included (1) the format of the class at the time, (2) the number of adults in the classroom, (3) the subject matter, (4) the total number of pupils in the room, (4) the number of students engaged in academics, procedures, or off-task behavior, and (5) a rating of apparent student success. The current version of the student engagement rating form is an adaptation of an earlier version designed by the Research in Classroom Learning and Teaching program (Evertson, Emmer, Sanford, Clements, Martin, & Worsham, Note 25) at the Research and Development Center for Teacher Education.

Teacher questionnaire. A teacher questionnaire (Appendix F) was administered to teachers at the beginning of the school year. This questionnaire (1) provided evidence of teachers' plans for the beginning of school, determined teachers' confidence in their ability to teach their assigned students and curriculum, and (2) tapped their thoughts regarding their students' ability to learn.

Procedure

Pre-intervention. During the summer months prior to implementation of the intervention, observers were recruited, and trained in the use of the Barnes Teacher Observation Instrument. Ten observers were trained to use the observation system. Seven observers were RITE staff members and three were experienced observers who lived in the research site area. The observation system consisted of two quantitative instruments (Barnes Teacher Observation Instrument and Student Engagement Rating form) and one qualitative instrument (Summary Paragraph). (For a complete description of this observation system, the reader is directed to Barnes, Note 21.) The first day of training included an overview of the Changing Teacher Practice Study and a general introduction to the research background upon which the study was based. An explanation of the categories and individual codes on the Barnes Teacher Observation Instrument followed. Observers then practiced recognizing the teaching behaviors on the Barnes Teacher Observation Instrument by coding typed narratives and videotapes of classrooms. Observers coded brief, two-page sections of the narratives. After the two pages were coded, the group discussed the responses. The same technique of short practice sessions with frequent feedback and reinforcement was also used with the videotapes (five minute segments) on the first day of training.

The second day of training included more practice on the Barnes Teacher Observation Instrument and training in the use of the Student Engagement Rating form and the writing of the Summary Paragraph. Because videotapes more closely approximated the actual classroom situation more emphasis was placed upon the videotapes on the second day. Again, practice was interspersed with discussion. Because each classroom observation in the Changing Teacher Practice Study was scheduled to be one hour in length, the length of time spent coding videotapes was gradually increased. Coders eventually coded continually for a period of thirty minutes using the Barnes Teacher Observation Instrument and the Student Engagement Rating form. After each videotape a Summary Paragraph was also written.

After the two days of training, measures of interobserver agreement were taken. Interobserver agreement for the frequencies of teaching behaviors was .89 on the Barnes Teacher Observation Instrument. Interobserver agreement was .83 on the Student Engagement Rating form. Summary Paragraphs were compared and discussed during training thus providing observers with mode's of desirable summaries.

Also during this period, a representative group of ten staff developers were contacted and their agreement to participate in the study was secured. They were matched and randomly assigned to treatment and control conditions. For each participating staff developer, two teachers from his or her respective group of teacher clients were selected by the staff developer and contacted to secure their agreement to participate in the study as well (see Figure 4).

Week 1 (August 23-27, 1982). The RITE staff conducted a series of five workshops on desired teacher behaviors and effective inservice change

Figure 4. Data Collection Schedule

Week	Staff Developers	Teachers	Students
8/23-27/82	1) RITE intervention 2) Narrative Observation of RITE Intervention. 3) Delivery and explanation of Guidelines for Staff Developers' Journals of Interactions with Participating Teachers.	1) Delivery and explanation of Guidelines for Teachers' Journals of Interactions with staff developers. 2) Delivery and pickup of Teacher Questionnaire. 3) Pre-observational contacts made by observers. 4) Delivery and pickup of demographic questionnaire.	
8/30-9/24/82	1) Journals of interactions maintained.	1) Classroom observations using the Barnes Teacher Observation Instrument. 2) Journals of interactions maintained.	1) Student Engagement Ratings of student on-task behavior
9/27-10/15/82	1) Journals maintained.	1) Journals maintained. 2) (10/11-15) Pre-observation contacts made by observers.	
10/13/82	1) Workshop with treatment group.		
10/18-29/82	1) Journals maintained.	1) Classroom observations. 2) Journals maintained.	1) Student Engagement Ratings of student on-task behavior

Week	Staff Developers	Teachers	Students
11/1/81-1/21/83	1) Journals maintained.	1) Journals maintained. 2) (1/17-21) Pre-observational contacts made by observers.	
1/16/83	1) Interviews with treatment group staff developers		
1/24-2/4/83	1) Journals maintained.	1) Classroom observation. 2) Journals maintained.	1) Student Engagement Ratings of student on-task behavior

strategies. This intervention was documented by RITE observers, using a narrative format.

The Guidelines for Teachers' Journals were delivered and explained to treatment and control group teachers. The Teacher Questionnaire was delivered to each participating teacher who completed the questionnaire and mailed it back to the RITE staff. Observers made pre-observation contacts with teachers during this week. Demographic questionnaires were also delivered, completed and returned at this time.

Weeks 2-3 (August 30-September 13, 1982). Staff development occurred at district, school, and classroom levels. Staff developers and teachers recorded each inservice interaction in their journals using their respective guidelines.

Weeks 4-5 (September 13-September 24, 1982) first observation period. Classroom observations were conducted during the first two weeks of the school year. Each teacher was observed for two hours of mathematics instruction and two hours of reading instruction for a total of four hours throughout the observation period. Student Engagement Ratings were taken every ten minutes during each observation. Staff developers and teachers recounted each inservice interaction in their journals using their respective guidelines.

Weeks 6-7 (September 27-October 15, 1982). Staff developers and teachers continued their journals.

Week 7 (October 11-15, 1982). Observers made pre-observation contacts with their respective teachers. Treatment group staff developers attended a three hour group session that had as its purpose to reinforce the staff developers ability to recognize research based desired teaching behaviors.

Weeks 8-9 (October 18-29, 1982), second observation period. Classroom observations were conducted as before. Student Engagement Ratings were taken as before. Staff developers and teachers continued their journals.

Weeks 10-21 (November 1, 1982-January 21, 1983). Staff developers and teachers continued to maintain their journals. Individual interviews were administered to treatment group staff developers.

Week 21 (January 17-21, 1983. Observe made pre-observation contacts with their respective teachers.

Weeks 22-23 (January 24-February 4, 1983), third observation period. Classroom observations were conducted as before. Student Engagement Ratings were taken as before. Staff developers and teachers continued their journals.

Analysis

The study, as designed, provided for data collection in classrooms during three observation periods with behaviors sampled twice within each period for both mathematics and reading classes. The Barnes Teacher Observation Instrument and the Student Engagement Rating from were used during each observation (Appendix C). This schedule produced twelve observations for each of the 20 teachers for a total of 240 observations. The two observations in each content area during each observation period were averaged together to produce a mean (N = 120). If an observation did not occur during the observation period, the single completed observation substituted for that mean. In eleven cases or for 9% of the data, no observations of a subject were possible during the observation period. All missing cases, except one, involved mathematics classes: eight of the participating teachers did not teach that subject during the first two weeks of school. After the first observation period, the schedule of one teacher

was changed. She no longer taught mathematics but instead taught reading to groups of students from several classes.

Two teachers in the original sample, both in the treatment group, were given new teaching assignments after the study was underway. One moved after the first observation period. Because that teacher would be working with a new staff developer in a new context, a replacement was recruited. As a result, data for the beginning of school for the replacement teacher was missed. The second teacher moved shortly before the final observation period in January; a replacement was not secured.

Staff developers and teachers were asked to keep ongoing records of their interactions. Variations in this data source were due largely to naturally occurring differences in the numbers of interactions between those participant pairs and to differences among individuals in their specificity and clarity when recording entries.

More specifically, the overall design consisted of an interlocking set of three quasi-experimental designs to examine the effects of interventions on three groups of participants: staff developers, teachers and students. As indicated in Figure 5, at the staff development level, a control-experimental, post-test only design was used to test hypotheses 1 and 3.

Figure 5. Research Design, Staff Development Level

Treatment Staff Developers:	RITE intervention for treatment staff developers	Post-test
Control Staff Developers:	Usual preparatory activities for control staff developers	Post-test

As indicated in Figure 6, at the teacher level, a similar control-experimental, post-test only design was used to test hypothesis 2.

Figure 6. Research Design, Teacher Level

Treatment Teachers:	Activities of treatment staff developers	Post-observations
Control Teachers:	Activities of control staff developers	Post-observations

As indicated in Figure 7, at the student level, a control-experimental, post-test only design was used to test hypothesis 4.

Figure 7. Research Design, Student Level

Treatment Students:	Activities of treatment teachers	Post-test
Control Students:	Activities of control teachers	Post-test

While the control-experimental, post-test only designs did not control for entry characteristics, the random assignment of participants to the treatment and experimental conditions controlled for most of these factors.

Analysis of Hypothesis 1

Treatment group staff developers will demonstrate more of the desired staff development behaviors than control group staff developers when doing inservice work with teachers.

Staff developers' journals were coded according to the frequency of occurrence of the 23 desired staff developer behaviors. Two independent coders indicated the presence or absence of the desired behavior for each journal entry. These were entered on a coding summary page. Prior to coding, four coders were trained and tests of inter-rater agreement were conducted. (Only one of the three coders was aware of treatment group membership.) Each coder was paired with every other coder. Across the four

coders, the inter-rater reliability was .87. For each pair, six in all, the agreement ranged from .87 to .88.

Subsequent to coding, disagreements between coders were discussed and resolved when possible. Of 8,073 possible instances of coding agreement, 29 disagreements were not resolved. These were not included in the analysis of staff developer behavior.

For each staff developer, treatment and control, frequencies of occurrence of desired behaviors were noted. The frequencies were then divided by the number of journal entries for each staff developer. This was necessary because of the difference in the number of entries across the staff developer role group members (entries ranged from a high of 65 to a low of 14). Thus, a mean frequency of desired staff developer behaviors was obtained for each participant.

The frequency of each discrete desired behavior was also determined for each staff developer and for the groups, treatment and control. The same procedure was used as for the total number of desired behaviors as described above.

Thus, in terms of number of desired staff developer behaviors, means of frequency of the entire list of behaviors by participant and by group were obtained as were means of frequencies for each behavior.

Analysis of Hypothesis 2

> Treatment group teachers will exhibit higher frequencies of desired teacher behaviors than control group teachers.

To control for variations in the length of classroom observations the raw frequencies from the BTOI were converted to rates per minute for each teaching behavior. Data taken over each two-week observation period were also averaged to produce a mean per observation period. Next, the teaching

behaviors within each category were averaged to produce 10 means (factors within the observation system) for each teacher for each observation period. Because the sample size of 20 teachers was small, mean rates were used to provide data that more closely approximated the normal distribution (Hays, 1973). The numbers reported from classroom observations are mean rates per minute for each category of teaching behavior. Due to the data manipulation, the numbers reported as mean rates are also quite small.

The design used to analyze observational data was a hierarchically nested, repeated measures design with five factors (see Figure 8). One factor was the "treatment" factor with two levels, treatment and control. Nested within each treatment condition was the second factor, "staff developers," with five levels. Staff developers were simply designated 1 through 5, therefore no qualitative meaning was attached to those designations. Nested within each staff developer was the third factor, the "teacher" factor, at two levels. The two teachers were again assigned number 1 or number 2 with no qualitative difference implied. Two factors were crossed with the other three; "time" (at three levels; time 1, time 2, and time 3) and "content" (level 1, mathematics; level 2, reading).

While it would have been preferable to analyze the data using a multivariate approach, the large number of missing observations in mathematics classes during time 1 made this statistically inappropriate (Hull & Nie, 1981). An alternative was to run univariate analyses on the 10 categories of teaching behaviors, acknowledging the limitations of that solution, most notably the dependency of those univariate analyses. This alternative was chosen for two reasons:

(1) The observation instrument was designed for this particular

	Staff Developer	Teacher	Content: Reading			Content: Math		
			Time: 1	2	3	Time: 1	2	3
Treatment	1	1						
		2						
	2	3						
		4						
	3	5						
		6						
	4	7						
		8						
	5	9						
		10						
Control	6	11						
		12						
	7	13						
		14						
	8	15						
		16						
	9	17						
		18						
	10	19						
		20						

Figure 8. Experimental Design for Changing Teacher Práctice Study

research project; such an analysis could aid in further refinement of the instrument.

(2) Categories largely coincided with separate factors (see Appendix C, Attachment 1); each category could be viewed as a subtest in a test battery and analyzed as such (Anastasi, 1976).

Analysis of Hypothesis 3

> Between treatment and control groups of both staff developers and teachers, the frequencies of desired staff developer behaviors will exhibit a logical relation with desired teacher behavior.

Because the two bodies of data, staff developer behavior and teacher behavior, are different in regard to several dimensions (i.e., self-report vs. observed, qualitative vs. quantitative, statistically vs. arithmetically manipulated), the relationship between the two was best accomplished by the application of intellectual logic. Therefore, the analytical examination of Hypothesis 2 was simply to answer the question, "Are the two sets of findings related and how?"

To answer this question the findings from Hypothesis 1 (staff developer behavior) and Hypothesis 2 (teacher behavior) were examined to determine the degree to which the treatment groups were consistent (e.g., higher staff developer demonstration of desired behaviors is matched by higher teacher demonstration of desired behaviors). No statistical manipulations were performed.

Analysis of Hypothesis 4

> Higher percentages of treatment group students will exhibit greater on task behavior as measured by the Student Engagement Rating (SER) protocol.

Mean percentages of students in each of the five engagement categories of the SER were computed for each observation. Within each content area mean percentages were computed for each observation period. These SER mean percentages per observation period within each content area were the bases for subsequent analyses.

The design used to analyze the SER data was identical to that used to analyze the BTOI data (Hypothesis 2, Figure 4). As with the BTOI data missing mathematic observations precluded a multivariate approach. Therefore, univariate analyses were run on the four categories of student engagement: On Task-Academic, On Task-Procedure, Off Task-Unsanctioned, and Dead Time.

Limitations

The results reported here are subject to several limitations. Because the sample was composed of volunteers, some bias associated with characteristics of volunteers can be expected. Participating staff developers were matched on some characteristics and randomly assigned to treatment groups. It is possible that other, uncontrolled characteristics may have influenced the outcomes. The selection of teachers to participate in the study was left to the individual staff developer. This process may have introduced some systematic bias based on staff developer preferences in particular schools. After one of the original sample of treatment group teachers moved to a new school, another teacher was selected by the treatment group staff developer. The replacement teacher would not necessarily have received the same attention from the staff developer prior to the beginning of school as the original member of the sample. In that the staff developer chose to emphasize teaching behaviors used at the beginning of school, the effects of the intervention on the replacement teacher were probably diluted.

Another limitation of the study is related to data collection in mathematics. During the first two weeks of school (observation period 1) eight teachers did not teach what they defined as mathematics. Overall, 9% of the planned observations in were impossible to obtain. While the statistical analysis adjusted for these missing data, a qualitatively incomplete picture resulted for the teaching behaviors in mathematic classes.

A further limitation of the study is the self report nature of the journal data. Staff developers and teachers each recorded impressions of their mutual interactions. It was thought that the treatment group staff developers might be inclined to make more frequent entries because of their interaction with the RITE staff during the intervention. To control for this anticipated but undesired effect, the total number of desired behaviors credited to each staff developer was divided by the number of entries made by that individual.

The validity and reliability of the observation instrument constitutes another limitation of the study. The BTOI was newly developed specifically for this study because existing observation instruments did not measure teaching behaviors at the low level of inference required by the study. This instrument appears to have adequate construct validity, based upon findings from the factor analysis, for research use. Observers were trained to acceptable reliability prior to the beginning of the study. A significant difference ($p < .001$) developed among observers over the course of data collection; however, observers were assigned to classes in a random manner so that the systematic error associated with the observers would be randomly distributed. (The observation instrument, while meeting the specific needs of this study, would need further refinement before it would be appropriate for use in teacher evaluation.)

FINDINGS

Hypothesis 1

Treatment group staff developers will demonstrate more of the desired staff development behaviors than control group staff developers when doing inservice work with teachers.

Table 5 includes the frequencies of desired staff developer behaviors for treatment and control groups as well as for individuals within the two groups. The frequencies are presented as means (i.e., number of desired behaviors divided by number of entries as described above). It can be seen that the treatment group mean is slightly more than twice as high as the control group. The results of a Mann-Whitney test indicate that this difference is statistically significant at the .01 level. The within group means also are in favor of the treatment group in that the highest mean for the control group is lower than the lowest mean for the treatment group.

Table 6 includes the mean frequencies for each of the 23 desired staff developer behaviors for treatment and control groups. These frequencies provide the substance of the difference between the group means presented in Table 6. It can be seen that there are strong differences between treatment and control groups on certain of the behaviors and not on others.

The strongest differences in favor of the treatment group (there were no instances of frequencies that favored the control group) were in the following behaviors:

1. Diagnose school- and classroom-specific regularities.
2. Provide teachers with opportunities to interact with one another about teaching and schooling.
4. Provide teachers with opportunities to plan together.

Table 5

Mean Frequencies of All Desired Staff Developer Behaviors Per Journal Entry by Group and Participant

Treatment		Control	
ID#		ID#	
1	5.12	6	3.70
2	5.44	7	2.33
3	8.78	8	1.66
4	8.14	9	2.85
5	6.43	10	4.15
$\bar{x}$ = 6.47		$\bar{x}$ = 3.05	

Table 6

Mean Frequencies of 23 Desired Staff Developer Behaviors Per Journal Entry by Group

	Behavior	Treatment	Control
1.	diagnose school- and classroom-specific regularities	.49	.27
2.	provide teachers with opportunities to interact with one another about teaching and schooling	.25	.12
3.	provide teachers with opportunities to observe one another and to discuss what was observed	.04	.02
4.	provide teachers with opportunities to plan together	.11	.02
5.	provide teachers with opportunities to implement their plans	.00	.00
6.	provide teachers with feedback which is objective, concrete, and focused	.22	.12
7.	use teacher time to deal with teacher problems, issues, and concerns (rather than with administrative, routine, or procedural matters)	.27	.26
8.	interact with teachers in friendly and positive ways	.03	.02
9.	adapt staff development behavior according to personal and organizational characteristics of "users"	.24	.05
10.	demonstrate knowledge of "effective" teaching as revealed by research	.37	.05
11.	provide in-classroom technical assistance (e.g., coaching) to teachers	.06	.03
12.	provide teacher with specific, concrete resources	.29	.18
13.	engage teachers in problem identification and solution formulation and testing activities	.16	.11

Table 6 continued

14.	work with teachers on adaptation of teaching strategies according to the characteristics of students, the classroom, and the school	.24	.11
15.	provide teachers with evidence that "teachers can make a difference" in pupil outcomes	.08	.02
16.	link teachers to technical assistance outside the immediate school environment	.22	.09
17.	communicate expectations clearly and precisely	.18	.12
18.	diagnose individual stages of concern of teachers	.03	.00
19.	formulate interventions based, in part, on teachers' stages of concern	.02	.00
20.	provide consistent, ongoing assistance to teachers	.09	.08
21.	include the building principal or resource teacher in activities	.17	.06
22.	reflect upon the effects of his/her behavior and use that reflection as a basis for decisions about maintenance or modification of that behavior	.14	.06
23.	focus on teacher behavior	.45	.09

6. Provide teachers with feedback which is objective, concrete, and focused.

9. Adapt staff development behavior according to personal and organizational characteristics of "users."

10. Demonstrate knowledge of "effective" teaching as revealed by research.

14. Work with teachers on adaptation of teaching strategies according to the characteristics of students, the classroom, and the school.

16. Link teachers to technical assistance outside the immediate school environment.

21. Include the building principal or resource teacher in activities designed to help teachers be more effective.

22. Reflect upon the effects of his/her behavior and use that reflection as a basis for decisions about maintenance or modification of that behavior.

23. Focus on teacher behavior.

That these behaviors account largely for the difference between the treatment and control group staff developers is of interest because they are, in great measure, characterized by (1) attention to the school as an organization, (2) reconsideration of the so-called isolation of teachers from other teachers and administrators, (3) recognition of the need to adapt behavior and expectations according to observed school conditions, and (4) promotion of interactions within and outside the school environment. Taken together, the behaviors are ones that break down the perceived inadequacies of schools and school people to act together toward organizational goals.

Another observation about the staff developer behavior findings is that the greatest difference between treatment and control groups is the one that

focuses staff development interactions on teacher behavior. There has been criticism of schools because they have been seen to lack a "technical core" (Williams, in Defino & Carter, Note 5). The technical core of schooling would be that body of knowledge and skill used to accomplish the mission of the school; in other words, teaching. And, importantly, the treatment group staff developers demonstrated the use of that body of knowledge in their interactions with teachers. (The qualitative differences between treatment and control group staff developers will be discussed in a forthcoming RITE publication based on a detailed analysis of staff developer and teacher journals.)

In sum, Hypothesis 1 is accepted in that treatment group staff developers did demonstrate greater frequencies of the desired staff developer behavior; that difference was accounted for largely by a subset of the desired behaviors. Conclusions, implications, and recommendations regarding these findings are discussed in the concluding section of this report.

Hypothesis 2

Treatment group teachers will exhibit higher frequencies of desired teacher behaviors than control group teachers.

To provide an overview of the results, the mean rates of each observation category for the treatment and control group, as well as the grand mean, are presented in Table 7. In the categories dealing with academics, the treatment teachers exhibited higher mean rates in "Planning and Preparation," "Presentation," and "Holding Students Responsible for Assignments." Treatment teachers displayed behaviors related to "Presentation" 12 times more often than did control teachers. Behaviors related to "Planning and Preparation" were seen nearly twice as often for

Table 7

Mean Rates of Observation Categories
for Treatment and Control Teachers

	Grand Mean	Treatment Mean	Control Mean
Academic			
A. Planning and preparation	.00667	.00865	.00489
B. Presentation	.04255	.4831	.03739
C. Interaction	.05041	.04692	.05354
D. Practice	.00700	.00682	.00716
E. Seatwork	.01456	.01291	.01640
F. Holding students responsible for assignments	.01199	.01365	.01050
Classroom Management			
G. Organizes classroom	.01142	.01591	.00740
H. Presentation of rules and procedures	.00484	.00715	.00276
I. Holds students responsible for behavior	.0098	.01102	.00905
J. Reactions to students' behavior	.02671	.02741	.02608

treatment teachers as for control teachers. Control teachers showed slightly higher mean rates for "Interactions," "Practice" and "Seatwork."

A more consistent pattern was seen in the four observation categories related to classroom management. In each of those categories, the treatment teachers displayed higher mean rates. For two categories ("Holds Students Responsible for Behavior" and "Reactions to Students Behavior") the differences were slight. For the other two categories ("Organizes Classroom" and "Presentation of Rules and Procedures"), the mean rates of the treatment teachers were more than twice as large as those of the control teachers.

In summary, treatment teachers had higher frequencies of desired behaviors in seven of the ten observation categories. They consistently used research-based teaching behaviors related to organizing and managing the classroom.

Attention will now turn to reporting the results of the analyses conducted to see whether these differences in mean rates were in fact statistically significant.

Evidence for "Planning and Preparation" for academics was seen twice as often in the classrooms of treatment teachers ($\bar{x} = .087$) as in the classrooms of control teachers ($\bar{x} = .049$). This difference was significant at the .089 level (see Table 8). Variations among the staff developers within the treatment groups were also significant ($p < .057$). Teachers associated with three treatment group staff developers produced mean rates which were almost twice as high as teachers associated with other staff developers (see Table 9). Evidence of planning and preparation was most often seen as posted schedules or calendars of assignments.

In the academic "Presentation" category, teachers in the treatment group again exhibited higher mean rates ($\bar{x} = .05$) than control group teachers ($\bar{x} =$

Table 8

Summary of Analysis of Variance for Planning and Preparation by Treatment Condition, Staff Developer, Time and Content

Source	SS	df	MS	F	Sig. of F
Error 1	.00082	8	.00010		
Treatment	.00038	1	.00038	3.73495	.089
Error 2	.00035	10	.00003		
Staff Developer with Treatment (Error 1)	.00082	8	.00010	2.92964	.057
Error 3	.00049	16	.00003		
Time	.00002	2	.00001	.36616	.699
Time by Treatment	0	2	0	.08264	.921
Error 4	.00056	8	.00007		
Content	.00021	1	.00021	3.01645	.121
Treatment by Content	.00006	1	.00006	.79401	.399
Error 5	.00040	14	.00003		
Time by Content	.00010	2	.00005	1.79724	.202
Treatment by Time by Content	.00012	1	.00012	4.23502	.059
Residual	.00196	41	.00005		

Table 9

Mean Rates for Planning and Preparation
by Treatment Condition and Staff Developer

	Treatment					Control				
Staff Developer	1	2	3	4	5	1	2	3	4	5
Mean Rate	.012	.005	.011	.003	.012	.003	.006	.006	.004	.005

.04). For example, treatment group teachers were likely ($p < .012$, see Table 10) to be more active in presenting new content, demonstrating, and making comparisons. These teaching behaviors were seen more often ($p < .122$) in mathematics than in reading classes over the semester.

Treatment and control teachers displayed similar mean rates of teaching behaviors in the "Interactions" category (see Table 11). A statistically significant difference ($p < .049$) was seen between mathematics ($\bar{x} = .045$) and reading ($\bar{x} = .055$) classes. In addition, interactions increased significantly ($p < .003$) across both groups of teachers as the school year progressed. Steady increase in mean rates of classroom interactions were found from time 1 ($\bar{x} = .029$) to time 2 ($\bar{x} = .052$) and from time 2 to time 3 ($\bar{x} = .064$). In these classes teachers asked questions and responded to students, for example, more often through the course of the school year.

Virtually no systematic difference was found between treatment and control teachers in the "Practice" category (see Table 12). However, significant differences ($p < .039$) were found among teachers associated with certain staff developers. Two staff developers, one in the treatment group and one in the control group, worked with teachers who produced high mean rates of teaching behavior. Three other staff developers, one in the treatment group and two in the control group, worked with teachers who exhibited low mean rates (see Table 13). Practice was more often seen in mathematics classes ($\bar{x} = .014$) than in reading classes ($\bar{x} = .001$). Since there was no significant treatment effect, it appears that some teaching behaviors associated with the practice of new material, like providing feedback, occurred naturally in these classrooms, although infrequently.

When the "Seatwork" category was examined, no statistically significant differences were seen between treatment and control group teachers (see Table

Table 10

Summary of Analysis of Variance for
Academic Presentation by Treatment Condition,
Staff Developer, Time and Content

Source	SS	df	MS	F	Sig. of F
Error 1	.00243	8	.00030		
Treatment	.00321	1	.00321	10.53567	.012
Error 2	.01057	10	.00106		
Staff Developer with Treatment (Error 1)	.00243	8	.00030	.28786	.955
Error 3	.00901	16	.00056		
Time	.00189	2	.00094	1.67475	.219
Time by Treatment	.00129	2	.00064	1.14326	.343
Error 4	.00428	8	.00053		
Content	.00160	1	.00160	2.99592	.122
Treatment by Content	.00072	1	.00072	1.34693	.279
Error 5	.00629	14	.00045		
Time by Content	.00048	2	.00024	.53429	.598
Treatment by Time by Content	.00021	1	.00021	.46220	.508
Residual	.02051	41	.00050		

Table 11

Summary of Analysis of Variance for Interactions by Treatment Condition, Staff Developer, Time and Content

Source	SS	df	MS	F	Sig. of F
Error 1	.04073	8	.00509		
Treatment	.00118	1	.00118	.23177	.643
Error 2	.02709	10	.00271		
Staff Developer with Treatment (Error 1)	.04073	8	.00509	1.87938	.173
Error 3	.02039	16	.00127		
Time	.02096	2	.01048	8.22456	.003
Time by Treatment	.00680	2	.00340	2.66953	.100
Error 4	.00745	8	.00093		
Content	.00502	1	.00502	5.39382	.049
Treatment by Content	.00174	1	.00174	1.86922	.209
Error 5	.01001	14	.00071		
Time by Content	.00138	2	.00069	.96410	.405
Treatment by Time by Content	.00066	1	.00066	.92342	.353
Residual	.06805	41	.00166		

Table 12

Summary of Analysis of Variance for Practice by Treatment Condition, Staff Developer, Time and Content

Source	SS	df	MS	F	Sig. of F
Error 1	.00355	8	.00044		
Treatment	0	1	0	.00708	.935
Error 2	.00133	10	.00013		
Staff Developer with Treatment (Error 1)	.00355	8	.00044	3.33167	.039
Error 3	.00243	16	.00015		
Time	.00042	2	.00021	1.37613	.281
Time by Treatment	.00072	2	.00036	2.38157	.124
Error 4	.00288	8	.00036		
Content	.00384	1	.00384	10.66510	.011
Treatment by Content	0	1	0	.01408	.908
Error 5	.00240	14	.00017		
Time by Content	.00032	2	.00016	.92407	.420
Treatment by Time by Content	.00036	1	.00036	2.07306	.172
Residual	.00544	41	.00013		

Table 13

Practice by Treatment Condition and Staff Developer

	Treatment					Control				
Staff Developer	1	2	3	4	5	1	2	3	4	5
Mean Rate	.004	.008	.013	.009	.000	.009	.005	.018	.001	.001

14). Once again, however, a significant ($p < .037$) staff developer effect was noted. Teachers associated with one staff developer in each group produced higher mean rates (see Table 15) than teachers working with other staff developers. These teachers were more likely to circulate and give individual assistance, for instance, than were the other teachers. In the "Seatwork" category, statistically significant differences ($p < .044$) were noted between the two contents. These teaching behaviors were more likely to occur in mathematics classes ($\bar{x} = .023$) than in reading classes ($\bar{x} = .008$).

In the final area of behaviors related to the teaching of academics, "Holds Students Responsible for Work," treatment and control teachers were similar (see Table 16). Teachers in both groups reminded students that work would be checked, for example, more often ($p < .084$) at time 2 ($\bar{x} = .0136$) and at time 3 ($\bar{x} = .014$) than at time 1 ($\bar{x} = .007$).

The final four categories of teaching behavior focused on the management and organization of the classroom. In the first area, "Organizes the Classroom," statistically significant differences ($p < .029$) were seen between treatment and control teachers (see Table 17). Those teachers in the treatment group posted rules, for instance, nearly twice as often ($\bar{x} = .016$) as did control group teachers ($\bar{x} = .007$). Evidence of organization was seen for all teachers most often in time 1 ($\bar{x} = .017$). By time 2, these behaviors were less frequent ($\bar{x} = .006$) but they increased again at time 3 ($\bar{x} = .013$). Even though the differences between these mean rates were statistically significant ($p < .012$), no obvious explanation was evident for these changes in rates over time. In addition, behaviors associated with organizing the classroom were more often recorded in reading ($\bar{x} = .007$) than in mathematics ($\bar{x} = .003$). Although the difference is considerable, this was probably due to the tendency of observers to scan the room for evidence of these behaviors

Table 14

Summary of Analysis of Variance for Seatwork
by Treatment Condition, Staff Developer,
Time and Content

Source	SS	df	MS	F	Sig. of F
Error 1	.00891	8	.00111		
Treatment	.00033	1	.00033	.29324	.603
Error 2	.00326	10	.00033		
Staff Developer with Treatment (Error 1)	.00891	8	.00111	3.41350	.037
Error 3	.00358	16	.00022		
Time	.00133	2	.00066	2.96434	.080
Time by Treatment	.00048	2	.00024	1.07802	.364
Error 4	.00832	8	.00104		
Content	.00592	1	.00592	5.69265	.044
Treatment by Content	0	1	0	.00760	.933
Error 5	.00535	14	.00038		
Time by Content	.00036	2	.00018	.47252	.633
Treatment by Time by Content	.00006	1	.00006	.15393	.701
Residual	.01113	41	.00027		

Table 15

Mean Rates for Seatwork by
Treatment Condition and Staff Developer

	Treatment					Control				
Staff Developer	1	2	3	4	5	1	2	3	4	5
Mean Rate	.013	.003	.010	.015	.039	.012	.009	.020	.009	.016

Table 16

Summary of Analysis of Variance for Holds Students Responsible for Assignments by Treatment Condition, Staff Developer, Time and Content

Source	SS	df	MS	F	Sig. of F
Error 1	.00187	8	.00023		
Treatment	.00027	1	.00027	1.13851	.317
Error 2	.00285	10	.00028		
Staff Developer with Treatment (Error 1)	.00187	8	.00023	.81928	.604
Error 3	.00125	16	.00008		
Time	.00045	2	.00023	2.89888	.084
Time by Treatment	.00011	2	.00005	.68204	.520
Error 4	.00017	8	.00002		
Content	.00007	1	.00007	3.34167	.105
Treatment by Content	0	1	0	.31538	.590
Error 5	.00089	14	.00006		
Time by Content	.00042	2	.00021	3.33910	.065
Treatment by Time by Content	0	1	0	.05182	.823
Residual	.00307	41	.00007		

Table 17

Summary of Analysis of Variance for Organizes Classroom by Treatment Condition, Staff Developer, Time and Content

Source	SS	df	MS	F	Sig. of F
Error 1	.00221	8	.00028		
Treatment	.00195	1	.00195	7.07235	.029
Error 2	.00291	10	.00029		
Staff Developer with Treatment (Error 1)	.00221	8	.00028	.94869	.520
Error 3	.00288	16	.00018		
Time	.00214	2	.00107	5.94514	.012
Time by Treatment	.00049	2	.00024	1.35799	.285
Error 4	.00051	8	.00006		
Content	.00029	1	.00029	4.51357	.066
Treatment by Content	.00001	1	.00001	.17636	.686
Error 5	.00305	14	.00022		
Time by Content	.00018	2	.00009	.42418	.662
Treatment by Time by Content	0	1	0	.01818	.895
Residual	.00435	41	.00011		

when they first entered the classroom, usually in the morning. In that reading was more commonly taught at the start of the day, evidence of organization was usually credited to reading. The statistical difference found here is probably due to a function of data collection rather than a true content difference.

When teachers presented the rules and procedures, differences were seen between treatment group and control group teachers (See Table 18). Treatment teachers demonstrated cues and had students practice procedures, for instance, more than twice as often ($\bar{x}$ = .007) as did control teachers ($\bar{x}$ = .003). These presentations involved using rules and procedures as the "content" of one or more lessons and using generally accepted teaching techniques as the "process" when teaching students the daily routine of the classroom. Because this category would logically be used most often at the beginning of the school year, it should not be surprising that time was a significant factor (p .001). Teachers in both groups presented rules and procedures most often at time 1 ($\bar{x}$ = .013) and infrequently at time 2 ($\bar{x}$ = .001) and time 3 ($\bar{x}$ = .002).

The significance of the treatment and time effects should be viewed in relation to a treatment by time interaction (see Table 19). Teachers in the treatment group taught the rules and procedures at time 1 more than three times as often ($\bar{x}$ = .022) as did control teachers ($\bar{x}$ = .006). The mean rate for treatment teachers ($\bar{x}$ = .002) at time 2 was still twice as high as that for control teachers ($\bar{x}$ = .001). By time 3 the mean rate for treatment teachers remained stable ($\bar{x}$ = .002) while the mean rate for control teachers ($\bar{x}$ = .002) increased from time 2 until it equaled the rate of treatment teachers.

Table 18

Summary of Analysis of Variance for Presentation of Rules/Procedures by Treatment Condition, Staff Developer, Time and Content

Source	SS	df	MS	F	Sig. of F
Error 1	.00085	8	.00011		
Treatment	.00052	1	.00052	4.85377	.059
Error 2	.00138	10	.00014		
Staff Developer with Treatment (Error 1)	.00085	8	.00011	.77649	.633
Error 3	.00193	16	.00012		
Time	.00272	2	.00136	11.26815	.001
Time by Treatment	.00106	2	.00053	4.39160	.030
Error 4	.00076	8	.00010		
Content	0	1	0	.10404	.755
Treatment by Content	.00005	1	.00005	.47366	.511
Error 5	.00133	14	.00009		
Time by Content	.00001	2	0	.07590	.927
Treatment by Time by Content	0	1	0	.04436	.836
Residual	.00079	41	.00002		

Table 19

Mean Rates for Presentation of Rules and Procedures by Treatment Condition and Time

	Time 1	Time 2	Time 3
Control Teachers	.006	.001	.002
Treatment Teachers	.023	.002	.002

Teachers in the treatment and control group used rules and procedures in the classroom and reacted to students' behavior at similar rates. In the category, "Holds Students Responsible for Behavior," no differences were statistically significant (see Table 20). Teachers in these classes already used some rules for governing students' use of the drinking fountain or talk among students during seatwork, for example. The use of rules and procedures was essentially unaffected by the intervention. The same condition held for the final category, "Reactions to Students' Behavior" (see Table 21). Except for a statistically significant difference ($p < .005$) between mean rates in reading ($\bar{x} = .023$) and mathematics ($\bar{x} = .031$), other effects were not quantitatively different. The explanation for the differences between content areas is not obvious at this point.

It can be argued that the teacher responses to student behavior recorded in the last category, "Reactions to Students' Behavior," are qualitatively different. This category included evidence of both spontaneous reactions to inappropriate and appropriate behavior, and evidence of preplanned and communicated consequences for inappropriate and appropriate behavior. Because of the intervention it was anticipated that treatment teachers would respond less often in a spontaneous manner and more often in a preplanned manner to both appropriate and inappropriate behavior. As can be seen in Table 22, this prediction was partially true. Control teachers reacted spontaneously more often ($\bar{x} = .145$) to students who were not following rules and procedures than did treatment teachers ($\bar{x} = .128$). Treatment teachers, however, reacted spontaneously more often ($\bar{x} = .066$) than did control teachers ($\bar{x} = .044$) to students who were following rules and procedures. In other words, treatment teachers were more likely to respond when students were cooperating, and control teachers were more likely to respond when

Table 20

Summary of Analysis of Variance for Holds Students Responsible for Behavior by Treatment Condition, Staff Developer, Time and Content

Source	SS	df	MS	F	Sig. of F
Error 1	.00077	8	.00010		
Treatment	.00010	1	.00010	1.08313	.328
Error 2	.00056	10	.00006		
Staff Developer with Treatment (Error 1)	.00077	8	.00010	1.73506	.204
Error 3	.00147	16	.00009		
Time	.00005	2	.00003	.29245	.750
Time by Treatment	.00005	2	.00002	.24764	.784
Error 4	.00033	8	.00004		
Content	0	1	0	.07069	.797
Treatment by Content	0	1	0	.05094	.827
Error 5	.00028	14	.00002		
Time by Content	.00003	2	.00002	.79067	.473
Treatment by Time by Content	0	1	0	.00215	.964
Residual	.00223	41	.00005		

Table 21

Summary of Analysis of Variance for Reactions to Students' Behavior by Treatment Condition, Staff Developer, Time and Content

Source	SS	df	MS	F	Sig. of F
Error 1	.00563	8	.00070		
Treatment	.00005	1	.00005	.06795	.801
Error 2	.01280	10	.00128		
Staff Developer with Treatment (Error 1)	.00563	8	.00070	.54944	.796
Error 3	.00510	16	.00032		
Time	.00032	2	.00016	.50302	.614
Time by Treatment	.00003	2	.00001	.04661	.955
Error 4	.00074	8	.00009		
Content	.00136	1	.00136	14.64340	.005
Treatment by Content	.00003	1	.00003	.27396	.615
Error 5	.00229	14	.00016		
Time by Content	.00010	2	.00005	.30262	.744
Treatment by Time by Content	.00009	1	.00009	.53122	.478
Residual	.00483	41	.00012		

Table 22

Mean Rates for Teacher Responses to Student Behavior by Treatment Group

	Treatment	Control
Teacher reacts to students not following r&p	.128	.145
Teacher reacts to students following r&p	.066	.044
Teacher uses consequences for inappropriate behavior	.020	.013
Teacher uses consequences for appropriate behavior	.049	.025

students were not cooperating. Treatment teachers also used planned responses more often for both inappropriate behavior ($\bar{x}$ = .020) and appropriate behavior ($\bar{x}$ = .049) than did control teachers ($\bar{x}$ = .013, $\bar{x}$ = .025, respectively). Treatment teachers did perform as expected in the use of consequences or planned responses to behavior.

To summarize the findings for the statistical analyses of hypothesis 2, treatment group teachers planned and prepared for teaching academic content and for organizing the classroom more often than control group teachers. The treatment group teachers also presented both academic content and rules and procedures more often than control group teachers. In some observation categories (planning and preparation for academics, practice, and seatwork) higher or lower rates of teachers' behaviors were associated with particular staff developers. In other words, the individual staff developers had significant effects upon the pairs of teachers. When the time factor was significant, the general trend was for behaviors to increase across treatment groups (interactions, seatwork, and holding students responsible for assignments). In one category, presenting rules and procedures, the rates across treatment groups decreased over time, significantly. Finally, significant differences in content were usually associated with higher rates for mathematics (practice, seatwork, and holding students responsible for behavior). The only category for which reading produced significant content effects was the interactions category. Implications of these findings from the statistical analyses will be explored later in this report.

In conclusion, hypothesis 2 can be accepted for certain categories of teaching (planning and preparation for academics, academic presentation, organizing the classroom, and presentation of rules and procedures) but must be rejected for others (interactions, practice, seatwork, holding students

responsible for assignments, hold students responsible for behavior, teacher reactions to students' behavior).

Hypothesis 3

> Between treatment and control groups of both staff developers and teachers, the frequencies of desired staff developer behavior will exhibit a logical relation with desired teacher behavior.

It was noted in the discussion of Hypothesis 1 that treatment group staff developers reported using significantly more of the desired staff development behaviors than did control group members. This difference was accounted for largely by a subset of 11 of the 23 behaviors. In the discussion of effective teaching behaviors, Hypothesis 2, it was reported that treatment group teachers demonstrated significantly more of the research-derived behaviors in certain categories than did control group teachers. Other categories of teaching behaviors were not significantly different in favor of either the treatment or control group.

The research objective of Hypothesis 3 was to determine if there is a systemic relationship between instructional leadership (staff developer behavior) and teaching. That is, if school leaders, principals and resource teachers in this study, practice those behaviors that have been associated with positive school change, do the teachers with whom they work alter their behavior? Further, if the school leaders know and understand research-derived effective teaching behaviors, will they use them as content for their work with teachers?

Examination of the findings from Hypotheses 1 and 2 suggest that there <u>is</u> a relationship between effective leadership behavior and teaching. Also, school leaders can and will use research-derived teaching behaviors as

content for their inservice education activities. This relationship is not clear cut and is not readily understood, given the methods and procedures used in this study. What seems to have happened with the treatment group staff developers is that they used the relatively unconventional leadership behaviors (e.g., adaptation of their own behaviors according to their teachers, provision of technical assistance outside the school, providing teachers opportunities for interacting and planning together, etc.) and focused those behaviors on teaching. The finding that there was such a dramatic difference between treatment and control staff developers in terms of focusing on teaching supports the possibility, already acknowledged, that the CTP study provided school leaders with a body of knowledge about classroom life that was coherent, organized and, one suspects, meaningful to teachers.

The positive relationship between staff developer behaviors and teacher behaviors was not consistent, however. The greater frequency of desired staff developer behaviors did not result in across-the-board relationships with all of the effective teaching behaviors. Consequently, Hypothesis 3 is accepted for certain staff developer behaviors and certain teacher behaviors. The implications of and speculations about this partial relationship are discussed in the last section of this report.

Hypothesis 4

Higher percentages of treatment group students will exhibit greater on-task behavior as measured by the Student Engagement Rating (SER) protocol.

Mean and standard deviations of the percentages of students in each of the SER categories are reported in Table 23.

- Table 23

Mean Percentages of Treatment and Control Students
by Subject, Time, and SER Category

		On Task Academic				On Task Procedural				Off Task Unsanctioned				Off Task Dead Time			
		Treatment		Control		Treatment		Control		Treatment		Control		Treatment		Control	
	Time	$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd
Math	1	75.5	25.1	69.9	18.3	19.5	25.8	27.2	19.9	2.1	3.5	2.9	2.3	2.9	4.3	0.0	0.0
	2	82.0	14.0	79.4	10.2	14.5	13.5	17.4	10.3	3.0	4.0	2.0	1.5	0.4	1.1	1.2	2.8
	3	82.7	13.4	80.9	9.5	12.7	14.0	13.1	10.4	3.6	5.5	4.9	4.8	1.1	2.8	1.1	2.2
Reading	1	71.8	9.2	61.8	30.5	23.0	7.0	34.1	32.8	4.0	2.3	2.1	1.7	1.2	2.1	2.0	2.8
	2	75.1	11.5	82.1	9.5	19.8	11.0	15.4	9.5	3.7	2.7	2.5	2.8	1.3	2.6	0.1	0.2
	3	82.4	8.1	77.3	10.4	14.9	8.2	19.0	9.5	2.6	3.2	3.5	2.3	0.0	0.0	0.2	0.5

The SER category, "On Task-Academic," is most directly related to student achievement. Except for the second observation of Reading, higher percentages of the treatment students were on-task in academic activities than their control counterparts. These differences, however, were not statistically significant. Both groups exhibited significant increases in their percentage of on-task academic behavior over time ($p < .05$, Table 24). In general, the greatest increases occurred between the first and second observations.

There was also a significant time effect for both groups ($p < .05$, Table 25), but in the opposite direction (Table 23). This simply confirms the notion that as students become accustomed to classroom rules and procedures, they use them more efficiently. In general, higher percentages of control students exhibited procedural behaviors than treatment students, again excepting the anomalous second Reading observation (Table 23). These differences were not statistically significant, however.

Except for treatment group Reading observations, the percentages of "Off Task-Unsanctioned" behaviors slightly increased over time (Table 23). No statistically significant differences between treatment and control groups emerged in this category. However, within both groups there were significant staff developer effects (Tables 26 and 27).

In the "Dead Time" category slight decreases were noted over time in both groups for both Reading and Mathematics (Table 23). Similarly to the "Off Task-Unsanctioned" category, significant staff developer effects were noted (Tables 27 and 28).

In light of the nonsignificant differences between percentages of treatment and control students engaged in academic activities, the research hypothesis could not be accepted. However, the consistently higher means for

Table 24

Summary of Analysis of Variance for On-Task, Academic by Treatment Condition, Staff Developer, Time and Content

Source	SS	df	MS	F	Sig. of F
Error 1	2718.21195	8	339.77649		
Treatment	168.23889	1	168.23889	.49515	.502
Error 2	2789.23197	10	278.92320		
Staff Developer with Treatment (Error 1)	2718.21195	8	339.77649	1.21817	.377
Error 3	4168.55544	16	260.53471		
Time	2451.22471	2	1225.61235	4.70422	.025
Time by Treatment	1040.18146	2	520.09073	1.99624	.168
Error 4	1503.27552	8	187.90944		
Content	123.04918	1	123.04918	.65483	.442
Treatment by Content	85.13636	1	85.13636	.45307	.520
Error 5	4303.42543	14	307.38753		
Time by Content	5.46848	2	2.73424	.00890	.991
Treatment by Time by Content	121.60887	1	121.60887	.39562	.539
Residual	5912.43249	41	144.20567		

Table 25

Summary of Analysis of Variance for On-Task, Procedural by Treatment Condition, Staff Developer, Time and Content

Source	SS	df	MS	F	Sig. of F
Error 1	3940.99531	8	492.62441		
Treatment	239.76308	1	239.76308	.48671	.505
Error 2	2860.71770	10	286.07177		
Staff Developer with Treatment (Error 1)	3900.99531	8	492.62441	1.72203	.207
Error 3	4287.87277	16	267.99205		
Time	2148.77079	2	1074.38540	4.00902	.039
Time by Treatment	1048.75107	2	524.37553	1.95668	.174
Error 4	1475.40219	8	184.42527		
Content	177.43840	1	177.43840	.96212	.355
Treatment by Content	43.48101	1	43.48101	.23576	.640
Error 5	4186.14153	14	299.01011		
Time by Content	15.55801	2	7.77900	.02602	.974
Treatment by Time by Content	86.49830	1	86.49830	.28928	.599
Residual	5861.60854	41	142.96606		

Table 26

Overall Mean Percentages of Students Engaged in "Off-Task Unsanctioned" and "Dead Time" Behaviors by Staff Developer and Treatment Condition

"Off Task Unsanctioned"

Staff Developer	1		2		3		4		5	
	$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd
Treatment	2.8	2.7	2.0	2.1	2.8	2.8	2.5	2.3	6.5	5.9
Control	3.3	2.3	4.6	4.0	1.2	1.2	4.2	2.2	1.4	2.5

"Dead Time"

Staff Developer	1		2		3		4		5	
	$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd
Treatment	0.7	2.4	0.1	0.4	1.7	2.5	1.7	3.1	1.0	2.7
Control	0.1	0.1	2.7	3.6	0.2	0.6	1.1	1.5	0.1	0.1

Table 27

Summary of Analysis of Variance for Off-Task, Unsanctioned by Treatment Condition, Staff Developer, Time and Content

Source	SS	df	MS	F	Sig. of F
Error 1	233.94232	8	29.24279		
Treatment	1.54308	1	1.54308	.05277	.824
Error 2	81.29648	10	8.12965		
Staff Developer with Treatment (Error 1)	233.94232	8	29.24279	3.59705	.031
Error 3	197.18667	16	12.32417		
Time	14.92776	2	7.46388	.60536	.558
Time by Treatment	33.56521	2	16.78261	1.36176	.284
Error 4	55.15137	8	6.89392		
Content	.03073	1	.03073	.00446	.948
Treatment by Content	3.89057	1	3.89057	.56435	.474
Error 5	91.27158	14	6.51940		
Time by Content	20.15477	2	10.07739	1.54575	.247
Treatment by Time by Content	.32314	1	.32314	.04957	.827
Residual	397.30068	41	9.69026		

Table 28

Summary of Analysis of Variance for Dead
Time by Treatment Condition, Staff Developer,
Time and Content

Source	SS	df	MS	F	Sig. of F
Error 1	73.16066	8	9.14508		
Treatment	1.64129	1	1.64129	.17947	.683
Error 2	27.55396	10	2.75540		
Staff Developer with Treatment (Error 1)	73.16066	8	9.14508	3.31897	.040
Error 3	96.64075	16	6.04005		
Time	25.96891	2	12.98446	2.14973	.149
Time by Treatment	.55152	2	.27576	.04565	.955
Error 4	44.20221	8	5.52528		
Content	5.76266	1	5.76266	1.04296	.337
Treatment by Content	.43515	1	.43515	.07876	.786
Error 5	24.17535	14	1.72681		
Time by Content	4.91791	2	2.45896	1.42399	.274
Treatment by Time by Content	5.26501	1	5.26501	3.04898	.103
Residual	212.21967	41	5.17609		

the treatment percentages in this category, the consistently lower treatment means for procedural activities, the very low N of the sample, as well as the extremely high inference involved at this level of the design would argue for a more powerful design in the future. Certainly the question should remain open, given the significant treatment effects found among teachers. Perhaps, as well, more sensitive instrumentation related to on-task behavior should be employed.

DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

The CTP study was an attempt to introduce research findings into ongoing school settings as a means to improve instructional leadership and teaching. Admittedly, the research findings that are available to the thoughtful practitioner do not cover all or nearly all of the activities associated with schooling and teaching. They do, however, provide a basis from which school leaders and teachers can make informed decisions and engage in reasoned action. Beyond what research tells school people is, of course, a world of schooling that calls for creative intellectual activity. The CTP study, in some regards, provided participating staff developers and teachers with a research-derived foundation upon which that creative activity can rest.

The two bodies of research that formed the core of the CTP intervention were findings from studies of teaching and findings from studies of school and teacher change. The intervention was provided to treatment group staff developers who then worked with teachers. The intervention was not a set of prescriptions for action. Rather, it provided a body of information and the participating staff developers selected strategies and content that, to them, were appropriate for their school settings, the teachers with whom they worked, and the students in the teachers' classrooms. Staff developer participants in the intervention were urged to engage in situation-specific

planning and to use the results of that planning in their interactions with school faculty members. The CTP intervention was designed to deliberately test the notion that staff developers could accomplish school goals without direct participation by persons outside the system; the RITE staff did not interact with teachers except to observe in their classrooms.

Four hypotheses were tested in the CTP study. These hypotheses were directed toward an examination of the effects of the CTP strategy upon staff developer behavior, teacher behavior, student behavior, and the relationship between staff developer and teacher behavior. The analyses of these hypotheses appear earlier in this report. Briefly, there was a strong effect upon staff developer behavior, a partial effect upon teacher behavior in that certain of the categories of teaching were statistically significant between treatment and control teachers, and little effect upon student behavior.

Discussion

There are several ways that these findings can be understood, if not explained fully. Among them are perspectives about (1) the setting and the participants, (2) the conventions of schooling, and (3) the conventions of teaching. These three perspectives will be used to organize the discussion of the findings.

The Setting and The Participants

Earlier in this report it was noted that certain setting characteristics were considered desirable for the pilot test of the CTP strategy. The RITE research team deliberately selected a school district that was characterized by complexity, reflective of problems and issues faced by large numbers of other districts, and with a history of concerted effort in staff development and school improvement. These selection criteria were met by the cooperating school district in the study.

The district is large, covering the spectrum of SES characteristics, and has had a recent history of making vigorous attempts to respond to the problems that arise from providing equal educational opportunity to a very heterogeneous population. Some schools in the district are new and architecturally pleasing, others are old and in various states of disrepair. There is a massive bussing program and a wide variety of special programs of both organizational and academic natures.

Of particular importance to the CTP study was the district's recent several-year history of attempts to increase student achievement as measured by standardized achievement tests. Among the strategies used to accomplish this objective were systematic attention to increasing student time-on-task, providing teachers with information about how to decrease classroom distractions, and the introduction of a carefully designed curriculum in reading and mathematics. These district-wide efforts were important because, in effect, they were focussed on many of the same dimensions of schooling as was the CTP strategy. That is, they zeroed in on the importance of pupil instructional time and the relation of teacher behavior to that time. This was particularly true of the curriculum packages that used much of the teaching research as bases for what students and teachers were directed to do during reading and mathematics instruction. The teachers who used the curricula were allowed little flexibility in that decisions about lesson plans, materials of instruction, testing, and grouping were made for them.

Consequently, in more than half of the schools and classrooms in the CTP study, equally divided between treatment and control groups, there was already in place a massive effort to increase student achievement through the use of research findings and curricula based, in large measure, on those

findings. In research terms, it might be said that the district program was Treatment A and the CTP study was Treatment B.

It is possible that some of the findings of the CTP study can be understood in terms of these setting characteristics. The partial effects at the teacher level may be an artifact of the concerted effort that had already made an impact upon participating teachers. If this is the case, the effects that were achieved through the CTP intervention can be considered even more positively.

The significant effects at the staff developer level are also partially understood as a consequence of knowing about the setting. Although there had been concerted effort aimed at teachers, there had been less systematic attention given to research-derived leadership strategies. This was particularly true of principals who participated in their own inservice activities but, according to participant reports, these activities were more organizational and procedural than substantive. It was less true of resource teachers in the study in that these persons were participants in the development and use of the curricula noted above. The resource teachers were experts in the curricula but were not necessarily given help in the most effective ways to guide teachers in their use of those curricula.

It was noted that the participants in the study, staff developers and teachers in both treatment and control groups, were, for the most part, experienced, well-educated, and highly regarded professionals. The district takes pride in the caliber of its staff and has a history of rewarding excellence. It is possible that the participants, much like the setting, are less typical of conventional school districts than was originally suspected.

The nature of the setting and the characteristics of the participants, then, worked for and against testing the power of the CTP strategy. On the

one hand, there were setting variables (e.g., the history of attention to teaching research) and participant characteristics (e.g., the number of advanced degrees held by teachers) that may have mitigated against strong effects. On the other hand, the lack of systematic district attention to what research can tell the instructional leader or the notions inherent in "teaching" classroom rules and procedures probably increased the potential of the strategy for illustrating differences between treatment and control group participants.

The Conventions of Schooling

It is axiomatic that school people "take care of business." The ways in which this is done have been described in some detail and the pictures that emerge from the descriptions are of more similarity than difference across school sites. The persistent rhetoric about how instruction can be influenced by school leaders is, to many observers, more hollow than not.

Research into effective schools and the school change process, however, have identified "outlier" school leaders, persons whose leadership behavior is identified with positive change, good climate, a sense of professionalism, and student accomplishment. Examination of the research and proposition regarding school leadership suggests the possibility that, to a certain extent, the "effective" instructional leader is someone who pushes back against the conventions of schooling, someone who reconceptualizes the organizational and management structure of schools and uses that reconceptualization as a means to make change happen.

The CTP intervention was most effective in terms of causing staff developers to act differently than might be expected if business as usual were carried forward. That is, the greatest differences between treatment and control group staff developers were largely linked to those leadership

behaviors that are not conventional ones. Providing teachers opportunities to work together and plan together mitigates against the isolation of teachers from one another and may recreate a shared sense of mission. Understanding what makes his/her school and teachers different from other schools and other teachers may have suggested more powerful inservice activities. Consideration of how one's own behavior, and the behavior of teachers, must be modified to adapt to the demands of schooling may have increased sensitivity to the problems of change. Recognizing the available and pertinent resources inside and outside of the school (human and technical) may have provided a broader picture of what can be accomplished in classrooms. And, reflecting on one's own work in terms of effects, rather than only in terms of whether an activity was completed, may have provided stimuli for redirection of effort.

There were, however, certain research-based leadership strategies that were not accomplished as a consequence of the CTP intervention. These, too, can be understood in terms of the conventions of schooling. For the participants in this study, for example, providing technical assistance in the classroom did not take place to any large degree. There is little in the histories of schools to suggest that this is either easy or, in fact, feasible in terms of the ways that schools are conventionally organized. Similarly, diagnosing and acting upon teachers' concerns is a powerful strategy that needs considerably more understanding and skill than the CTP strategy was able to accomplish. Further, the organization of schools and the dailiness of school activity probably mitigates against the concerted effort and time needed to use concerns theory systematically or thoroughly.

As was true in the discussion of the findings in relation to the study's setting and participants, the conventions of schooling may account for the

success of the strategy in that some of the staff developer strategies, although not typical of school programs, were possible to effect. Others, however, may have been so dramatically unconventional that they required more system accommodation than the CTP intervention could induce.

The Conventions of Teaching

It is sometimes forgotten that the research-based effective teaching behaviors were, for the most part, invented by teachers. That is, teachers engage in certain practices that researchers discover to be consistently related to some positive student outcome, most often achievement gain on standardized tests. The CTP study was an attempt to bring together these research-based effective teaching behaviors such that staff developers could use them as the content of their work with teachers. Because the teaching behaviors are, in the main, neither exotic nor inconsistent with conventional classroom activity except in terms of focus or emphasis, it is not surprising that there were statistically significant effects for some groupings of behaviors and not for others.

The intervention used with the staff developers affected the teaching behaviors of the treatment group teachers in the desired direction, in some cases significantly. The greatest differences in teaching effects were seen in two important components of the teaching process, planning and presenting. These differences were seen whether the content of that teaching process was academic or whether it was rules and procedures for classroom activity. The differences for planning are probably tied closely to one particular intervention resource, A Manual for Organizing the Elementary School Classroom (Evertson et al., Note 22). Following suggestions made in the manual would logically result in the posted rules or academic schedules seen in classrooms of treatment group teachers. Use of the manual would also

account for the increased rates for presenting rules and procedures as the content of a "lesson," an idea that may be foreign to many teachers.

The increased rates for academic presentation are more difficult to account for, and according to some research (Good & Grouws, Note 9) more difficult to accomplish. Two ideas should be considered. An intervention resource was the Teacher Manual: Missouri Mathematics Effective Project (Good et al., Note 20) which stressed the development of the conceptual ideas of the lesson through teacher presentation. One could conclude that the manual achieved its purpose in the RITE study by increasing the presentation behaviors of the treatment teachers. Good and Grouws, however, expressed some concern with their success in enhancing the development portion of mathematics lessons with the teachers in their own study. The key here is one of quality versus quantity. Good and Grouws were interested in the quality of teacher presentation skills (clarity, for example) while the RITE study was concerned with the quantity or frequencies of certain teaching behaviors. It may have been easier to simply increase frequencies of behaviors in a teacher's repertoire in the RITE study than to increase the variety of "effective" teaching behaviors in the Missouri Mathematics Project.

The conventions of teaching also help to understand other findings in the CTP study. Significant content differences, for example, appeared to be logically related to common practice (i.e., more practice, seatwork, and presentation in mathematics) or to be the result of observer coding decisions (i.e., coding round robin reading as interactions related to product questions). Likewise, the persistence of seatwork as a classroom activity probably precluded any systematic difference between treatment and control group teachers. It is unlikely, then, that some of the research-based

teaching behaviors would be new to the setting or to the participants. In light of the discussion of the school district's attention to research on teaching in recent years, a statistically significant difference for all teaching behaviors in the study between treatment and control groups would be even more surprising.

Returning to the notion that teachers invented the effective behaviors and researchers found them to be effective according to a criterion, it is encouraging that certain groups of teaching behaviors were statistically significant in favor of the treatment group. There is little in the setting to suggest that influences other than the CTP intervention caused the differences.

Implications

As with understanding the findings, there are several ways that the CTP study can be viewed in terms of implications for the improvement of school practice. The two that will be discussed here are implications for (1) research into practice and (2) local capacity building.

Research into Practice Implications

There has been considerable talk and some activity around the topic of the so-called "gap" between research and practice. It has been assumed that the reduction of the ideological and temporal distances between what research discovers and what practitioners do are almost insurmountable. The CTP study, a deliberate attempt to bridge the gap, resulted in a set of desired outcomes that suggest that practitioners will use the results of research. Several implications can be drawn from the implementation of the CTP intervention.

First, practitioners in this study were neither disdainful of nor resistant to lessons learned from systematic inquiry. One can speculate that

the reasons for their positive responses to the CTP intervention were based largely on the fact that the research that was presented was directly related to practice and, in almost every instance, was "commonsensical" in terms of practitioners' views of their world.

Second, the research provided a focus for doing the work of classrooms and schools. It provided conceptualizations of instructional leadership and teaching that were coherent and that could serve as rallying points around which to organize practice. Although there is an obvious public emphasis on somehow improving schools, there is a less obvious response from either the research or practitioner community regarding how to go about that improvement. The CTP intervention seemed to provide bases for improvement activity, a welcome resource for school persons.

Third, the research was translated from the sometimes painful jargon of the research community into the more conventional language of schools. This translation was accomplished in some instances in print by the resource materials provided to participants and in others interpersonally by the RITE research team during the intervention. Although the study did not specifically address this issue, participant self-reports at the conclusion of the study testified to its importance in their decisions to adopt the strategy in schools and classrooms.

Fourth, the CTP strategy was conceptually and practically linked to ongoing processes and expectations in the school setting. As discussed earlier, the school district had in place activities and statements of purpose that were ideologically and theoretically aligned with the intentions of the CTP intervention at system, school, and classroom levels. As with other speculations in this section, it can be surmised that this alignment

was a significant system variable contributing to the overall success of the CTP strategy.

Fifth, the CTP strategy was not a set of prescriptions for action. That is, participants were not required to engage in certain practices. Rather, participants were expected to analyze their own situations, using a relatively rationalistic set of procedures and data sources, and then make decisions and act upon their analyses. This is in marked contrast to improvement strategies that demand fidelity to a set of ideas or practices. The CTP strategy's demand was to consider and act upon the perceived match between school/classroom characteristics and a set of research-based options for leadership and teaching practice.

In sum, the implications of the implementation of the CTP strategy in terms of research into practice suggest that similar interventions will be positively viewed and acted upon when research is seen as directly related to the problems and issues in the setting, is relatively familiar to participants in terms of practical activity, is understandable conceptually and linguistically, and can be subjected to adaptation depending upon the character of the setting.

Local Capacity-Building Implications

The CTP study was, of course, an attempt to strengthen the role of research findings as guides to ongoing leadership and instructional practices. The design of the study was such that another purpose could be served, that of increasing local school district capacity to improve classroom activity. Although there are many entry points into schools for improvement purposes, the CTP strategy elected to make its primary impact at the school leader level so that influence on the participating district could be deep and wide. This is in contrast to a strategy, for example, that would

work with individual or groups of teachers. The CTP strategy was constructed on the assumption that staff developers work with large numbers of teachers who, in turn, work with large numbers of students. If the strategy was effective, it could (1) reach more people than might be possible or feasible when working only with teachers and (2) the effects would increase the capacity of the district to do school improvement because of the enhanced knowledge and skills of its leadership cadre. As was noted earlier in this report, it is possible that the CTP intervention provided school leaders with a "technical core," a body of knowledge and skill required for a cohesive and successful organization. Further, the CTP strategy's design of staff developer-teacher linkage acted upon the phenomenon that has been called "loose coupling" (Williams, in Defino & Carter, Note 5). School systems have been criticized because their organizational components are not tightly joined to serve common missions. In the CTP strategy, two organizational components, leadership and teaching, were tightly coupled through systematic attention to what research has shown to be effective teaching.

It has been shown that the strategy was largely successful in accomplishing the goal of increasing the frequencies of certain leadership behaviors used by staff developers. The implications of this for practice are obvious. The behaviors are not specific to the content of the CTP intervention. They can be used in both maintenance and improvement activities. They can be used for a wide variety of purposes within the school organization. They are economical in terms of material resources. There is no magic involved. And, because they are carried by people rather than equipment or technology, they can be transferred from one place in the system to another.

Recommendations

In reflecting upon the CTP strategy in terms of its conceptualization, implementation, analysis of data, and implications, several recommendations can be advanced.

1. The research into practice phenomenon needs to be studied more extensively. The key word here is "study." There have been many attempts to bring about research into practice but they tend to be studied only to the extent of the participants' perceptions of whether or not they saw the experience as valuable. The CTP study was one of a handful of systematic attempts to use rigorous research techniques to determine the effects of an intervention designed specifically to introduce research findings into ongoing school and classroom settings.

2. The CTP study should be replicated in other settings and with larger numbers of participants. This recommendation arises from the understandings of the present setting as discussed above and is designed to determine whether or not the CTP strategy is differentially affected by system variables such as the history of school improvement already noted. Would the intentions of the strategy be realized differently in schools and districts that were less knowledgeable about the body of research called "effective teaching?" The RITE research team believes that the answer to this question is "yes," but without evidence that can remain only a speculation.

3. The CTP intervention should be revised in light of what was learned during the course of the present investigation. There are, for example, some aspects of the intervention (e.g., in-classroom technical assistance, use of concerns theory) that need to be reconceptualized for use in practical situations. Some of the resource materials should be packaged differently. Certain intervention activities need more emphasis, others less. These and

other revisions can be accomplished with relatively little effort and would be based upon the findings of this first implementation of the strategy.

4. The CTP intervention should be made available to districts or consortia of districts. There is enough research evidence from the present study to support the dissemination of the strategy. In keeping with the cost-effective nature of the strategy, however, it would be advisable for the further dissemination of the strategy to take on the form of a team-building enterprise, perhaps in states or regions, rather than at the individual district level.

5. The research methodology of the CTP study needs some refinement. In particular, a more sensitive means of determining student on-task behavior needs to be developed and/or adapted. Similarly, pupil outcome data need to be collected in the form of achievement gains. This probably should be a longitudinal issue due to the problematic nature of student populations over short periods of time, especially in urban settings.

CONCLUSION

The implementation of the CTP study demonstrated the possibilities (and the problems) associated with attempting to introduce research findings into school and classroom settings through an intervention aimed at school leaders. The study accomplished many of its goals and fell somewhat short of others. The reasons for both accomplishments and shortfalls are as complex as are the schools and classrooms that were the ultimate targets of the strategy. The intervention was a research success, although the success was not as dramatic as might have been desired. At the same time, it must be acknowledged that the ambitions of the study were large ones.

This report has centered, quite naturally, on the effects of the CTP intervention in research terms. The effects in more practice-related ways provide a somewhat different chronicle.

The participating school district officers were enthusiastic about the CTP strategy from the beginning. There was a high level of excitement about the possibilities before, during, and after the intervention and subsequent data collection. Participant response from treatment group members was consistently positive. Importantly, participants testified that other staff developers in the district should have the same opportunity they had been provided.

When the study was completed and the findings were available, the district adopted the CTP intervention for 175 elementary and middle school principals and resource teachers. Part of the adoption decision was made on the basis of research. That is, the findings of the CTP study were positive enough to suggest the usefulness of the strategy for district purposes. A large part of the decision, however, appears to have been made on more practical grounds. The RITE research team suspects that the commonsense approach to doing leadership and doing teaching was compelling to district officials. Also, the cost effectiveness of the strategy, in terms of financial resources, was undoubtedly attractive. And, the probable generalizability of the leadership behaviors to school improvement purposes other than teaching was a factor.

When the CTP research was completed, the RITE research team returned to the study site, demonstrated the intervention, modified somewhat to fit current district needs and schedules, and local persons were selected to carry it forward. These persons had been members of the original treatment group staff developers and were sensitive to, knowledgeable about, and

skillful in the content and processes of the intervention. Since the final analyses of the data presented in this report, the intervention has been presented to more than 100 principals and resource teachers, in groups of 10 to 15, and the principals and resource teachers have worked with more than 3000 teachers. This was accomplished in a five-month period.

In the document that proposed the CTP study to the National Institute of Education, the following statement appeared:

> The story goes that George Washington Carver once prayed to understand the secrets of the universe. Despairing of an answer to so comprehensive a request, he modified his desire for understanding to the more modest dimensions of the peanut, thereafter contributing to scientific and economic advancement and successfully solving the problem of slippage in the jelly sandwich.
>
> Similarly, having despaired of understanding the secrets of producing effective teachers who will induce students to become persons of all accomplishments and virtues, [RITE has] settled for understanding some processes by which most elementary teachers can be helped to teach most elementary students to demonstrate higher levels of skill in mathematics and reading.

As can be seen from the content of this report, that modest statement itself subsumed an ambitious purpose. The study, however, has demonstrated the possibility of accomplishing large parts of the purpose and has provided the groundwork for better understanding of the research into practice phenomenon.

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Appendix A

Changing Teacher Practice Intervention

This study was concerned with the effects of staff developer behaviors upon teachers with whom they work and with the effects of teacher behaviors upon pupil outcomes. The purpose of this study was to increase the skills of staff developers in bringing about specific changes in teacher practice. These changes in teacher practice were hoped to positively affect pupil outcomes.

In order to increase the skills of staff developers, an intervention was designed. This intervention took the form of a week of intensive training which focused on findings from two areas of research, (1) effective teaching practice, and (2) the process of change.

Ten staff developers, in ten different schools participated in this study. Two teachers, selected by each staff developer were followed closely after the staff developers participated in the training week. Five of the staff developers were assigned to the treatment group, while five were assigned to the control group. Only the treatment group participated in the training week. The purpose of this paper is to describe the week of training in which the treatment group of staff developers participated.

Three resource teachers and two principals made up the treatment group. (The control group held identical roles.) Each participant was responsible for working with teachers in an effort to promote more effective teaching and school improvement.

The training week was conducted in a conference room at a local hotel. Each day was scheduled to last from 9:00 a.m. until approximately 3:30 p.m. The format for the first three days of the training week consisted of consultants sharing information with the participants, while the last two

days were devoted to planning for implementation. The following section of this paper will detail each day of the training week.

Day 1

Four members of the Research in Teacher Education (RITE) staff, the assistant superintendent for staff development in the selected school district and the five staff developers who were chosen as the treatment group participants were present on the first day of training. The first hour was devoted to the introduction of individuals and their professional roles and an explanation of the intentions of the study by the RITE program director. The director of the RITE program shared with the staff developers the handout entitled, "Information for Participants" (See Attachment 1). As the program director explained one of the major responsibilities of the staff developers participating in the study was to keep a weekly journal. Guildlines for the journal were discussed and enumerated. (See Attachment 2.) All participants seemed willing to utilize the week of training to obtain whatever information they could to enhance their jobs and therefore their schools.

Participants were provided with the following materials:

Publications

1. Edwards, S. Changing teacher practice: A synthesis of relevant research. Austin, TX: The University of Texas, Research and Development Center for Teacher Education, 1981.
2. Good, T.L. Classroom research: What we know and what we need to know. Austin, TX: The University of Texas, Research and Development Center for Teacher Education, 1982.

3. Barnes, S.G. Synthesis of selected research on teaching findings. Austin, TX: The University of Texas, Research and Development Center for Teacher Education, 1981.

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Handouts

1. Desired Teaching Behaviors
2. Desired Staff Developer Behaviors
3. Selections from "Useful Research for Staff Development: An Eclectic Approach," a paper prepared by Gray Griffin for the Title I seminar for the Central States, Austin, Texas, January, 1982. (Attachment 3)
4. Information dealing with the Concerns-Based Adoption Model (CBAM) and Stages of Concern (SoC) to be presented on Day 3. (Attachment 4)
5. Daily Agendas for the first three days of the training week (Attachment 5)
6. Changing Teacher Practice Workbook (Attachment 6)

Forms

1. Information for participants in the study (Attachment 1)
2. Vouchers for participants in the study

The first presenter was responsible for the entire first day. Her responsibilities consisted of sharing a list of desired teaching behaviors and training staff developers to recognize these behaviors in a classroom setting. The presenter explained that the list of desired teaching behaviors

had been derived from research studies that met with the following four criteria: (1) research methodologies were verified as being procedurally rigorous and not open to interpretive question; (2) findings emerged from real classroom settings rather than laboratory settings; (3) findings were amenable to precise and clear translations to practitioners; and, (4) the findings were related directly to demonstrable concerns and/or problems of teachers and teacher educators (Barnes, Note 1). Findings from these selected studies were translated into specific teaching behaviors which related to the learning environment, the management of behavior, classroom instruction, and teaching style.

The following research derived behaviors were discussed:

Planning and preparation

- teacher allocates time per academics
- teacher posts assignments for day
- teacher posts assignments for week
- teacher provides calendar with assignments

Presentation of content

- teacher gives or seeks rationale for lesson
- teacher presents new information or content
- teacher refers to previous lesson content
- teacher uses materials
- teacher divides, compiles tasks into steps
- teacher gives demonstration
- teacher uses concrete examples
- teacher makes comparisons
- teacher points out patterns
- teacher uses examples related to students' interests

- teacher gives directions
- teacher relates new activity to previous or future activity

Interactions

- teachers asks questions where students provide "the" answer (product questions): (a) correct, (b) incorrect
- teacher asks questions where students provide "how" and "why" (process questions): (a) correct, (b) incorrect
- teacher calls on students
  - non-volunteers
  - in predetermined pattern
  - accepts callouts
- teacher waits for students to respond to questions
- teacher explains "how" or "why" the answer was obtained (process explanation)
- teacher accepts academic comments by Ss during lesson
- teacher accepts content questions during lesson
- teacher accepts procedure questions during lesson
- teacher answers content questions asked by Ss after instruction
- teacher answers procedure questions asked by Ss after direction-giving

Practice

- teacher conducts practice over new (or old) materials in whole group
- teacher checks students' responses for correctness
- teacher provides feedback
- teacher moves around classroom
- teacher reminds students that they should be working or

participating

- teacher states, posts, or writes rules/procedures

Presentation of rules/procedures

- teacher provides/seeks a rational for rules and procedures
- teacher communicates to students desired attitude
- teacher communicates to students desired behavior
- teacher introduces groups of rules and procedures at different times
- teacher explains rules and procedures in concrete terms
- teacher demonstrates rules and procedures
- teacher breaks complex rules and procedures into steps
- teacher explains cues associated with rules and procedures
- teacher demonstrates cues
- teacher has students practice rules and procedures
- teacher gives feedback on students' performance
- teacher reteaches rules and procedures
- teacher communicates consequences to students

Holds students responsible for behavior

- teacher observes students' behavior
- teacher uses rules and procedures for use of materials/areas
    - storing students' possessions
    - using learning centers
    - students' use of shared materials, cabinet
    - students' use of teacher's desk and area
    - students' use of drinking fountain/sink
    - students' use of pencil sharpener
    - students' use of bathrooms

- students' use of out-of-class bathrooms, drinking fountains, office, library, resource room, health office
- passing out books and supplies
- telling students which materials to bring to groups
- playground
- lunchroom

- teacher uses rules and procedures for discussion
  - students' participation in class discussion
  - talk among students during academic presentation
  - talk among students during seatwork
  - talk among students during free time
- teacher uses rules and procedure for movement
  - students lining up to leave room
  - students coming and going to other areas of school
  - students' movement into and out of groups
  - students leaving seats during academic presentation
  - students leaving seats during seatwork
  - students leaving seats during free time
- teacher uses rules and procedures for assignments
  - students getting teacher's attention for help
  - students turning in work
  - students handing back assignments
  - students making up work
  - student activities after seatwork is finished
- teacher uses rules and procedures for helpers
  - selecting students for helpers
  - using student helpers

- teacher uses rules and procedures for student conduct during interruptions and delays
- teacher uses rules and procedures for cueing student attention

Reactions to students' behavior

- teacher reacts to students not following rules and procedures
- teacher reacts to students following rules and procedures
- teacher uses consequences for inappropriate behavior
- teacher uses consequences for appropriate behavior
- teacher reacts to undersired attitudes
- teacher reacts to desired attitudes
- teacher uses consequences for undesired attitudes
- teacher uses consequences for desired attitudes

(For complete description of these selected behaviors and the rationale behind their selection see Barnes, Note 2.)

Participants were then asked to identify these behaviors in two narrative documentations of actual classroom settings (Attachment 7). Discussions and clarifications followed each "narrative practice." Once participants felt comfortable with their ability to identify the desired teaching behaviors, they were asked to practice their skill while viewing two videotapes of teachers in the process of instruction. (These videotapes are described in detail in Attachment 8.) Each participant used the BTOI to record behaviors while viewing the videotapes. The teacher in the first videotape focused instruction on the presentation of rules and procedures, while the instruction of the teacher in the second videotape was of an academic nature.

Participants were then given time, at the end of the first day, to interact with the RITE staff regarding the day's events. The RITE program director ended the first day with general concluding remarks.

DAY 2

The second day of training was devoted solely to how staff developers might serve as change agents in their respective schools. Two RITE staff members had responsibility for this training day.

Following a review of the first day's activities, the objectives of the study were again discussed and clarified. Figure 1 was displayed while the overall purpose of the study was reviewed.

The presenters then proceeded to share findings from studies related to the facilitation of change in teacher practice. Three general areas, related to desired staff development behaviors were addressed: (1) mutual adaptation; (2) organizational development; and, (3) support networks. (For a complete discussion of these three staff development concepts see Edwards, Note 3). These change strategies were included in the content of the second day's presentation because they had been found to be effective in producing desired results when functioning as an integrated interactive whole. For planning, learning, observing, and descriptive purposes, however, a list of specific staff developer behaviors, derived from the research literature related to teacher change, was provided for the staff developers. Staff developers were informed that this list of behaviors was to be used to guide their staff development efforts. The list of desired staff development behaviors follows.

- diagnose school- and classroom-specific regularities
- provide teachers with opportunities to interact with one another about teaching and schooling

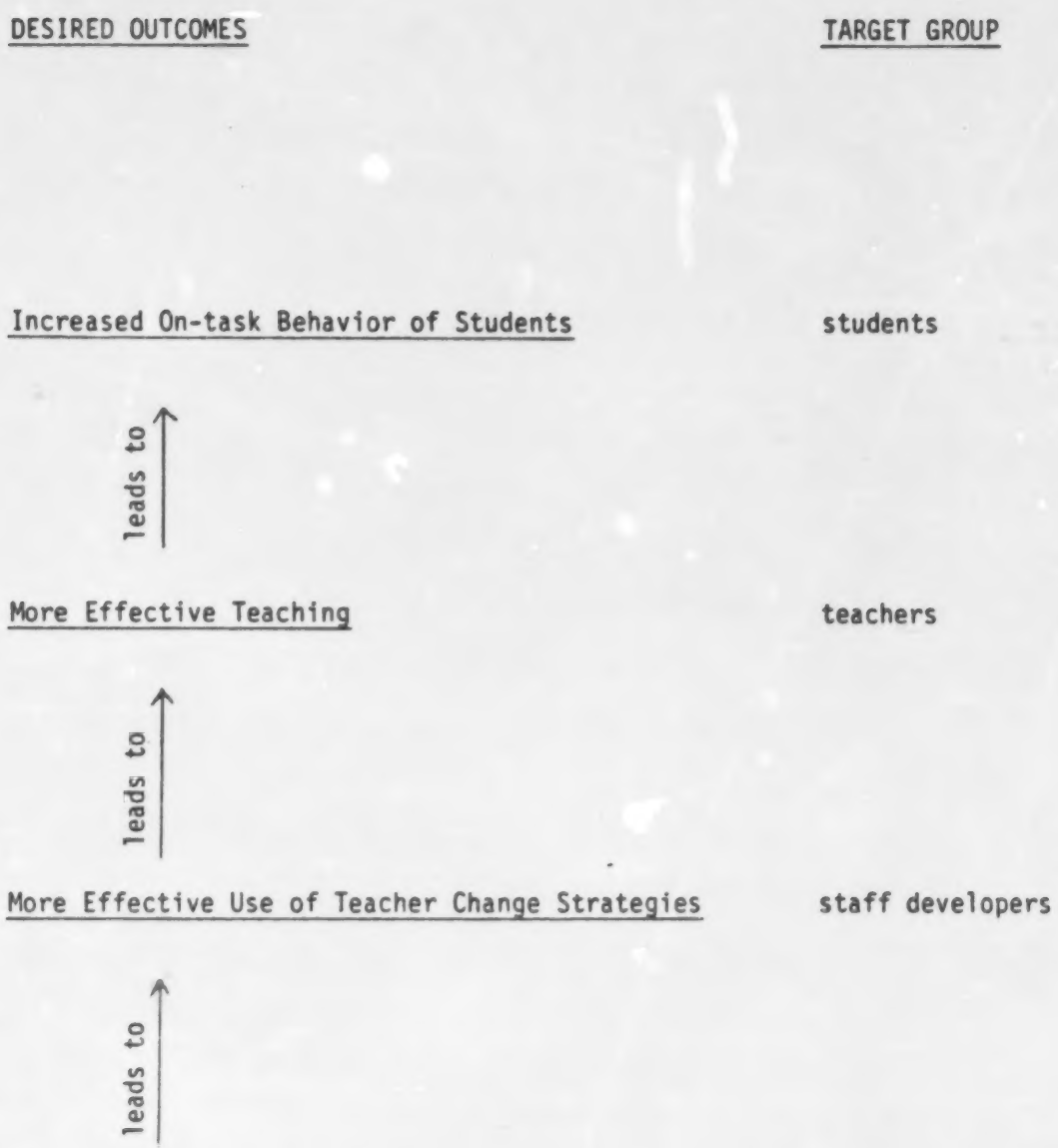

Figure 1. The Changing Teacher Practice Strategy.

- provide teacher with opportunities to observe one another and to discuss what was observed
- provide teacher with opportunities to plan together and to implement the plans
- provide teachers with feedback which is objective, concrete, and focused
- use teacher time to deal with teacher problems, issues, and concerns (rather than with administrative, routine, or procedural matters)
- interact with teachers in friendly and positive ways
- adapt staff development behavior according to personal and organizational characteristics of "users"
- demonstrate knowledge of "effective" teaching as revealed by research
- provide in-classroom technical assistance (e.g., coaching) to teachers
- provide teachers with specific, concrete resources
- engage teachers in problem identification and solution formulation and testing activities
- work with teacher on adaptation of teaching strategies according to the characteristics of students, the classroom, and the school
- provide teachers with evidence that "teachers can make a difference" in pupil outcomes
- link teachers to technical assistance outside the immediate school environment
- communicate expectations clearly and precisely
- diagnose individual stages of concern of teachers
- formulate interventions based, in part, on teachers' stages of concern
- provide consistent, ongoing assistance to teachers
- include the building principal in activities designed to help teachers

be more effective

- reflect upon the effects of a given behavior and use that reflection as a basis for decisions about maintenance or modification of that behavior
- focus on teacher behavior

Following the presentation of research findings on effective staff development and the delineated list of desired staff developer behaviors, staff developers were informed that they could enlist support from the RITE staff. First they were asked to list materials that they might need to facilitate change in their teachers' behaviors or simply to carry out the staff development of their teachers in the best way possible. Participants were informed that this list would be attended to by the RITE staff. Participants were informed that all reasonable requests for materials would be met. Secondly, the participants were asked to be sensitive to possible rules, regulations, and/or situations that might impede their work with teachers. If there was an existing practice that tended to interfere with their work with teachers, the RITE staff would, when feasible and possible, help to remove that obstacle by interacting with and presenting logical arguments to the administration.

The final hour of the second day of training was devoted to an implementation activity and a questionnaire that pertained to the third day of training. Participants were asked to combine their knowledge of desired teacher behaviors and desired staff developer behaviors and respond to the "Changing Teacher Practice Workbook" (Attachment 6). Participants were then asked to complete the Change Facilitator Stages of Concern Questionnaire (Attachment 9).

Day 3

A researcher from the Concerns-Based Adoption Model (CBAM) program at the Research and Development Center for Teacher Education was responsible for the third day of training. She was introduced by the director of the RITE program. He noted that CBAM had both a research focus as well as a practical focus.

The consultant first discussed the underlying assumptions of the CBAM, which focuses on change as a process. She explained that regardless of the worthiness of an innovation, outcomes will be tied to the degree to which the innovation is implemented. Day 3 of training therefore consisted of the consultant helping the participants to (1) understand the process of change, (2) correctly diagnose individuals' concerns about and use of innovations, and (3) plan for effective interventions in order to bring about the desired change. (For more detailed information on the CBAM effort see Hall, Note 4 and Hall, George, & Rutherford, Note 5.)

Through the use of slide-tape presentations, and application tasks (i.e., given this situation, what would you do?) the presenter guided the participants toward an understanding of the process of change. Participants then interpreted profiles of individuals and institutions which were involved in the process of change. These exercises served as examples that helped participants to diagnose the concerns of individuals involved in change and identify appropriate interventions. In addition, participants were introduced to the concept of "Levels of Use" (LoU) of an innovation. Research results were shared, activities worked through and discussions conducted regarding the applicability of the LoU concepts in each of the participants' contexts.

Day 4

The fourth day of training was devoted to planning for implementation. Participants again worked toward completing their Changing Teacher Practice Workbooks. RITE staff was available for guidance, advice and/or interaction.

Day 5

The fifth day was devoted to the completion of planning for implementation as well as individual interviews with each staff developer. The staff developer interview protocol is found in Attachment 10.

The interview was designed to determine the extent to which each staff developer was making conscious use of the findings from research, which had been shared with them throughout the course of the week. The RITE staff asked each of the participants the reasons for each of the activities and decisions reported in the "Changing Teacher Practice Workbook."

Finally, the RITE program director offered concluding remarks and thanked the staff developers for their participation.

Reference Notes

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Attachment 1

INFORMATION FOR PARTICIPANTS

1. The study is designed to find out what staff developer strategies are related to effective teaching (and, consequently, pupil outcomes). Half of the staff developer participants will go about "business as usual" and half will be provided with approximately 20 hours of inservice about effective staff development and effective teaching. All staff developers must agree to participate in the inservice if they are selected for that group.

2. The participating staff developers will be asked to respond to interviews and to keep a journal of their work with participating teachers, and to tape record their interactions with the teachers to whom they provide staff development.

3. The participating staff developers will each be asked to nominate and secure agreement from two teachers with whom they work to participate in the study. This agreement must be secured prior to August 23.

4. The participating teachers will each be asked to keep journals of their interactions with the staff developers, to participate in a brief telephone interview prior to an observation, to be observed for twelve hours during the course of the study: three hours during the first two weeks of school, three hours during the last week of January and first week of February. Teachers will also complete a questionnaire prior to the beginning of school and will respond to a thirty-minute simulated classroom situation exercise at the end of the study.

5. Students in the teachers' classroom may be tested during the first week of school and during the first week of February. The tests will be of reading and mathematics skill and knowledge. (This may be changed, depending upon agreements with the district.) Four students from each classroom will be interviewed during each of the data collection periods noted in 7 above. For these interviews, teachers will be asked to provide a set of handouts, assignments, or books used by the teacher and students during the observation.

6. Staff developers who do not receive the inservice program noted in 1 above will be given the opportunity to receive it subsequent to the last data collection period (February).

7. Confidentiality and anonymity are guaranteed to all participants.

8. Information collected will not be used for evaluation purposes by San Diego Unified or by the Research in Teacher Education program.

9. Classroom observations will be done unobtrusively and at the convenience of the teachers. Teachers will agree to the observations in advance. Observations will be of reading and mathematics instruction only.

10. Results of the study will be made available to all participants during the summer of 1983.

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Attachment 2

Guidelines for Staff Developers' Journals

The purpose of this journal is to provide an ongoing record of the inservice interactions between you and the teachers for whom you are responsible. In this record we would like for you to include your own interpretations and analyses as well as descriptions of overt behaviors. The journal will be kept confidential. The teachers with whom you work will not see your journal. You will be assigned a research number which will be used as identification.

We are interested only in the content of these records, not in the composition form or sentence structure, so it is unnecessary to spend time in editing or rewriting. We are interested in <u>what</u> you have to say, not in <u>how</u> you say it. The following guideline questions provide focus for your journal entries and the examples of journal entries illustrate the type of information which will be helpful to our study.

1. What was the specific purpose of the interaction? Was it a planned formal interaction or a spontaneous informal meeting? Was it initiated by yourself or by the teacher?

2. What was the focus of the interaction? Were specific teacher behaviors discussed? Were student outcomes considered? What was the major concern of the teacher? What was your major concern?

3. What was the nature of the interaction? What happened? What activities took place?

4. What was the context of the interaction? Where did the interaction take place? Was it in a large group or one-to-one or in a small group? Were the surroundings comfortable? What authority figures were present?

5. To what degree and in what manner were any of the specific teacher behaviors delineated in this study dealt with?

6. Which, if any, of the specific change strategies delineated in this study could you identify in the interaction? Did you intentionally employ specific change strategies? If so, which ones and why?

7. What were the results of the interaction? What outcomes were intentional and what outcomes were unanticipated?

8. What are your interpretations of the interaction? Does it represent an isolated instance or is it a part of an ongoing process

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of inservice? Did it achieve some specific objective? Does it serve as an indicator of progress toward a larger, more long-term goal toward which you are working?

9. How would you evaluate the interaction? In what way and to what degree was it helpful? Useless? Detrimental?

10. What questions, frustrations, or problems did you experience?

11. How helpful to you in achieving desired changes in teacher behaviors were any of the change strategies presented to you by this study?

Please include any additional information which you feel might help us to answer the question: In what ways were the change strategies which we presented to the staff developers helpful to them in facilitating an increase in teacher use of the specific behaviors identified by this study?

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Attachment 3

USEFUL RESEARCH FOR STAFF DEVELOPMENT: AN ECLECTIC APPROACH

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Prepared for
TITLE I SEMINAR FOR THE CENTRAL STATES
Austin, Texas
January 20-22, 1982

182

THE PEER GROUP STRATEGY

DEFINITION: The peer group strategy is based upon the processes of dialogue, decision-making, action, and evaluation as school people work together (with only minimal outside assistance) on issues they consider to be important and situation-specific.

ASSUMPTIONS

1. Receptivity to change is related positively and directly to the amount of professional (as opposed to social) collegiality in a school setting.
2. The primary resources for school change lie within the school community.
3. Innovation and change will take place only as school persons are involved in their planning, implementation, and evaluation.
4. Risk-taking is promoted by systematic and intensive collegial interaction.
5. Commitment to change is promoted by an atmosphere which encourages risk-taking.
6. The school (as opposed to the district) is the logical unit for change.
7. The principal is a key agent for school change.
8. Teachers in isolation are more protective of their own practices than teachers in collegial groups.

FEATURES

1. Teacher talk is focussed on professional issues.
2. Teachers know about the school, not just their own classrooms.
3. Teachers and principals work together as colleagues rather than as authority figure and followers.
4. All elements of the school setting are considered grist for the mill of change.
5. Communication is bidirectional rather than hierarchical.
6. Success is rewarded -- failures are acknowledged as "honest attempts" at school improvement.
7. Teachers work together to solve problems.
8. School officials provide personal and intellectual support and provide technical assistance to school staffs.

ACTIVITIES

1. Teachers observe one another in classrooms.
2. In-school (and community) resources are identified.
3. School meetings are substantive rather than procedural.
4. Teachers convene and conduct workshops and other development activities for one another.
5. Teachers call upon administrators for assistance rather than principals calling teachers to task.
6. Teachers and principals engage in self-study.
7. Teachers help teachers.
8. Attention is given to the sequence of dialogue, decision-making, action, and evaluation (DDAE) in terms of dealing with school issues.
9. Support groups are established in schools and, in some cases, between schools.

ANTICIPATED OUTCOMES

1. School self-improvement.
2. Situation-specific problems receive situation-specific solutions.
3. Teacher self-esteem is increased.
4. Professional collegiality is increased.
5. Communication links are strengthened.
6. Teachers assume leadership.
7. Teachers seek advice when it is needed.
8. Principals become resource persons as well as team members.
9. Morale and professionalism are increased

Adapted from Bentzen, M. Changing Schools: The Magic Feather Principle. New York: McGraw-Hill, 1975.

ORGANIZATION DEVELOPMENT

DEFINITION: Organization development (OD) is a planned and sustained effort to apply behavior science for system improvement, using reflexive, self-analytic methods.

ASSUMPTIONS

1. A system is a complex set of related elements, each of which has some impact upon the others.
2. By changing the system, the individuals within it can also be led to change.
3. Systems need increased abilities to cope with problems which were not envisioned when they (the systems) were created.
4. System members are the most appropriate persons to increase the system's ability to cope.
5. Outside persons can only assist system members in solving their problems.
6. Reflexive, self-analytic methods are more powerful stimuli for change than are adoption of "packages."
7. Organizations are not easily or quickly changed.
8. Social psychology, psychology, and sociology are disciplines which can assist in system improvement.

FEATURES

1. System members engage in confrontations.
2. System members use outsiders to assist -- not to solve.
3. Role definition is a key element of OD.
4. Goal clarification is a continuous process.
5. The culture or climate of the system is of primary importance.
6. System members engage in intensive (and extensive) problem solving.
7. The relation of the individual to the system is under constant examination.

ACTIVITIES

1. Training/education which involve direct teaching or experience-based learning (e.g., lectures, exercises, simulations).
2. Process consultation involving observation, assistance, and coaching.
3. Confrontations among and between groups of persons who have had "problems" in the organization -- these sessions are data-based.
4. Data feedback which is the systematic collection of information and the subsequent reporting of that information to guide diagnosis, problem-solving, and planning.
5. Problem-solving.
6. Plan-making.
7. Task forces.
8. Techno-structural activity focussing upon the alteration of the organization's structure, work-flow, and means of accomplishing goals.

ANTICIPATED OUTCOMES

1. Increased organizational "health."
2. Higher morale of system members.

3. Goal clarity.
4. Close and logical relations between ends and means.
5. Greater clarity of roles and responsibilities.
6. Open communication.
7. Systematic (and eased) problem solving.

Adapted from Miles, M. & Schmuck R. Improving Schools Through Organization Development. New York: Basic Books, 1971.

INTERACTIVE RESEARCH AND DEVELOPMENT

DEFINITION: Interactive Research and Development (IR&D) is a strategy designed to involve school persons with researchers and developers in school problem solving through systematic inquiry and formulation of staff development activities based upon the inquiry.

ASSUMPTIONS: In IR&D, it is assumed that:

1. The research, development, and schooling communities lack real communication and integration of efforts.
2. Teachers and other school persons are the most valid and reliable sources of data about important issues and school problems.
3. School persons do not study their situations as much as they make (often unsubstantiated) evaluative statements about them.
4. Educational researchers often ask questions about schooling which are considered irrelevant by school persons.
5. Educational research and development is linear whereas life in schools is often nonlinear.
6. Educational research, in general, is unfamiliar to school persons and, often, when it is familiar is lacking in credibility.
7. The lack of credibility is seen as a forceful reason why educational research and development do not find their ways into schools.

FEATURES

1. An IR&D team is made up of five to eight teachers, one researcher, and one developer.
2. Each team member has parity with every other team member in terms of decisions and actions.
3. An IR&D team is expected to be collaborative.
4. Each team member is expected to contribute from his/her own special knowledge and skill bases.
5. IR&D team work is expected to focus on school problems as identified and verified by school persons.
6. IR&D research and development must maintain the ecological integrity of the school setting.
7. IR&D research is expected (process or product) to be translated into staff development activities.

ACTIVITIES

1. Identification of research question.
2. Validation of the research question by colleagues.
3. Formulation of a research design to answer the research question.
4. Consideration of the feasibility of the processes and/or products of the research for development purposes.
5. Use of non-team members (in addition to team members) in data collection, analysis, and development activities.
6. Formulation of a development plan based on research.
7. Ongoing and systematic evaluation of process(es).
8. Idenfication, solicitation, and use of technical assistance when needed.

ANTICIPATED OUTCOMES

1. Greater awareness of educational options and possibilities.
2. Greater understanding of educational research and development by all participants, not just teachers.
3. Increased ability at problem identification.
4. Increased levels of collegiality.
5. Expanded sense of roles other than one's own.
6. Higher skill levels in terms of research requirements.
7. Greater sense of professional worth.
8. Heightened sensitivity to the possibilities of systematic inquiry.
9. Commitment to professional self-reflection.
10. Increased cosmipolitanism.
11. Modification or practices (school, research, etc.).
12. Clarification of the complexities of schooling.

Adapted from: Tikunoff, W., Ward, B., and Griffin, G. Interactive Research and Development on Schooling: Final Report. San Francisco: Far West Laboratory for Educational Research and Development, 1979.

CURRICULUM DEVELOPMENT AS STAFF DEVELOPMENT

DEFINITION: Curricula guide the work of teachers and students in schools. The development of curricula which are situation-specific and responsive to the needs of particular schools and/or systems involves all persons concerned with schools, responds to problems and issues of importance to school people, requires collaboration and communication, and promotes the use of local resources.

ASSUMPTIONS

1. School curricula are influenced by decisions made at societal, institutional, and instructional levels of schooling.
2. Curricula which do not attend to local issues/problems are less effective than ones which do.
3. Educational issues/problems tend to be situation-specific.
4. Many participants in the educational process are left out of the schooling process when, by right, interest, and expertise, they should be included.
5. Teachers often make curricular decisions which are in disharmony with decisions made by others in the system.
6. Articulation of curricula across schools and grade levels is a persistent problem of schools.
7. Curriculum decision-making is at the heart of the schooling enterprise.
8. Curriculum decisions are made most often by commercial (textbook) companies.

FEATURES

1. Representatives of the three levels of schooling have distinct responsibilities for curriculum decision making.
2. Societal level persons (board members, state departments, etc.) have principal responsibility for determining, with others, the major goals of schooling.
3. Institutional level persons (principals, curriculum committees, district office persons, etc.) have principal responsibility for determining what broad categories of activity will be used to accomplish the goals of schooling.
4. Instructional level persons (teachers, teams of teachers, and students) have principal responsibility for determining precisely how the institutional level decisions will be put into action in individual classrooms with individual students.
5. Decisions center around (1) purposes, (2) learning opportunities to accomplish the purposes, (3) organization of purposes and learning opportunities, and (4) evaluation.
6. Decisions are made in concert with others.
7. Decisions are made as a consequence of careful examination of the needs of the system and the characteristics of the people in it.

ACTIVITIES

1. Community participation in formulating and advising about goals.
2. School persons deliberating together about how the goals will be translated into curricula.
3. Curriculum needs assessments.

4. Teacher-administrator cooperation in planning.
5. Constituent representation in decision-making groups.
6. Validation of decisions throughout the community of interest.
7. Field-testing of curricula in carefully selected settings.
8. Use of teachers as resource persons in implementation.
9. Program (as opposed to student) evaluation.
10. Continuous monitoring and revision.

ANTICIPATED OUTCOMES

1. "Relevant" curricula.
2. Greater professionalism and morale on the part of teachers.
3. Broader understanding of the school/system by school persons.
4. Broader understanding of the school/system by community members.
5. Shift of attention from organizational problems to teaching and learning issues.
6. Stronger articulation between and among grade levels.
7. Raised expectations for teacher and student performance.
8. Decreased isolation of school persons from one another.
9. More responsive school programs.

Adapted from Griffin, G. "Levels of Curricular Decision Making." In Goodlad, J. Curriculum Inquiry. New York: McGraw-Hill, 1979.

USEFUL RESEARCH FOR STAFF DEVELOPMENT: AN ECLECTIC APPROACH

Gary A. Griffin

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This paper summarizes the content of the session of the same title at the Title I Seminar for the Central States held in Austin, Texas on January 20-22, 1982. The main topics are (1) problems of conducting quality research about staff development, (2) a rationale supporting the use of a so-called eclectic approach to research utilization for staff development, and (3) summaries of four research-derived strategies for "doing" staff development.

Staff Development Research Dilemmas

Until very recently, there has been a lack of rigorous and systematic research into staff development. Although research activity has increased during the past decade, the inquiries which have been conducted in that period tend to be survey rather than more complicated inquiries of either a descriptive or an experimental nature. Several reasons for this lack of research activity are proposed below.

First, rigorous research into a complex human phenomenon is very difficult largely due to the number of variables which have to be considered. Consider a typical staff development effort. There are objectives of the strategy, planning activities, personal perceptions of effects, implementation efforts, monitoring activities, unanticipated outcomes, personal and professional characteristics of the participants, materials, space, time, energy -- the list of variables which could be considered in determining objects of study is virtually endless. Also, the interactions of these phenomena complicate the matter even more. As a consequence of this complexity, efforts to understand staff

development have often eliminated significant issues consciously or ignored them by default.

Second, staff development takes place in organizations which are not characteristically receptive to research work. This is especially true when the research work interferes with the ongoing activities of schooling which, naturally, has much higher priority for school people. It is probably a part of every school person's history that a university professor has tried to rearrange a school day, substitute one subject for another, keep boys and girls in from recess, or in some other way alter the usual pattern of the classroom. These experiences, accumulated over time do little to enhance the image of research or the researcher in the eyes of teachers and school administrators. Another possible explanation for the schools' lack of receptivity to research activity is the limited utility the findings of research appear to have for improved practice. Informal discussions and more formal observations suggest that school people see research (and researchers) as little more than nuisances in an already overcrowded worklife.

Third, the dominant modes of research into the social sciences have been borrowed (adapted) from the so-called "hard sciences." The methods and procedures, dependent upon quantification for the most part, simply have not borne fruit in terms of human enterprise and group interactions. This dominance of a relatively ineffective means to understand human enterprise has severely limited the possibility of doing quality research and, many would argue, has contributed to the lack of utility of the findings from the research which has been done.

Last (for this discussion -- the list could continue), the school settings have become heavily bureaucratized and the consequences of this

are increased paperwork, greater dependence upon externally-imposed deadlines and requirements, detailed record-keeping, and the like. It is not a surprise, then, that the school person, already drowning in a sea of red tape and paper, resists either formulation of or participation in research enterprises which also require responsibilities additional to those already part of a busy professional life.

In sum, although many reasons for limited research activity regarding staff development could be advanced, the ones I have chosen are (1) the complexity of the phenomenon itself, the lack of receptivity of school organizations to research activity, the typical (in a historical sense) research procedures and methods, and the additional time and effort required of persons doing or participating in research.

Why An Eclectic Approach to Research Utilization?

The most obvious response to the question immediately above is contained in the preceding section. If little systematic research activity has been carried forth, isn't it reasonable to put one's bets on knowledge generated from different, or somewhat different research work? That, however, is insufficient.

In my view, it is important to consider approaches to doing staff development which have some roots in reality, in the social complexities of schools. Although it can be argued that reality is an amorphous concept which resides only in each individual's perceptions of the world, there are, I believe, certain perceptions which are shared widely enough to offer some semblance of a picture of shared experience. Certain characteristics of schools and schooling seem to offer support for this conclusion. For example, the following list of "commonplaces" of schooling would be familiar to most of us: the persistence of texts in

instructional settings, the presence of a hierarchy of authority in schools, the interactions of people called teachers and people called students, the physical appearances of schools and classrooms, the "problem" of the underachiever, the yearly or semi-yearly administration of standardized tests, and so on. Although each of us may perceive these phenomena differently and place differing values upon them, they are part of our shared reality when we think and talk about schools. It is essential to consider these realities when adapting research findings to staff development programs and I have found that they are present in the four sets of ideas presented below.

Also, the ideas which underlie the approaches below are ones which are "considerate" of school people. That is, they take into account the dailiness of schooling, the pressures placed upon teachers and administrators, the historical precedents of schooling, and the like. Too often, strategies for professional development are impositions which require markedly different (often drastically so) knowledge and skill. Although I am not arguing against the learning of new behaviors by school people, I am concerned when an external "expert" (or internal institutional member, for that matter) makes unusual demands upon people who are already overwhelmed with responsibility.

Finally, an eclectic approach allows the staff developer the freedom of picking and choosing, mixing and matching according to the characteristics of his or her colleagues and the organizations within which they function. All of us have been coerced, seduced, forced, ordered into programs which, somehow, were meant to improve our performances or enhance our productivity (e.g., the requirements of the curriculum reforms of the 1960's, the rigidly prescribed teacher's text,

the mandate to team teach, etc.). If more attention had been paid to who was to implement, where implementation would take place, and the potential barriers to implementation, I am certain that a wider net, a more eclectic one, would have been cast in order to capture the most effective staff development strategies and programs.

Four Strategies for Staff Development

This section will briefly describe four strategies which can be adapted for staff development use in Title I and other school settings. As can be expected from the discussion above, they are approaches which emerged from research but the research origins were not intentionally staff development ones.

Staff Development as Organizational Development

Organizational Development (OD) has a long history in industry and, to a lesser extent, in school settings. The premises which underlie the strategy are rooted in the basic assumption that the organization will change as the people in it change. It is problem-solving oriented, dependent upon reflection and deliberation, and systematic in its use of existing resources to act upon organizational issues. There is considerable evidence to suggest that OD is an appropriate means for school persons to solve their own problems. The extension of OD for our purposes is the addition of a group problem-solving component which requires participants to learn new roles and to act out new relationships with colleagues, clients, and patrons. This training component, focused upon those skills necessary to deal with the complexities of the school organization, is the heart of the staff development approach. The consequences of enacting the new behaviors are, of course, changes in the school organization (goals, mission, means, communication,

leadership, authority, decision-making, etc.) but also include greater ease in recognizing and acting upon school problems (Dillon-Peterson, 1980).

The Peer Group Strategy

During the I/D/E/A study of school change, it was found that certain phenomena could be observed in schools which were perceived by the research team as being most receptive to change (Bentzen, 1975). The schools where change was accepted and where changes occurred were ones where the school people interacted systematically over substantive and other school-related issues. Four stages of this interaction were observed: dialogue, decision-making, action, and evaluation. Not only were these human exchanges observed, they were observed in rhythmic patterns again and again in the order noted here. When one considers the relative simplicity of introducing such behaviors into a school setting, one can conceive of promoting improvement. These behaviors are central to the peer group strategy in which the resources to act upon problems are perceived as being present in the group of persons who make up a faculty, a department, or a school system. Too often it is assumed that a problem can be solved only by an outside expert-consultant. What many of us have discovered over the years is that the expert-consultant role is best played (and most appreciated) when the intellectual and practical integrity of the people in the school setting is called upon in times of problem solving.

Interactive Research and Development on Schooling

School people are often accused of not attending to their own problems with scientific rigor. The accusation holds up probably because we have neglected to stress the need for systematic inquiry in

our professional preparation programs and, once a teacher or administrator is on the firing line, the time for such preparation is long past. Although there is a number of premises underlying Interactive Research and Development (Tikunoff, Ward, and Griffin, 1979), only a few will be cited here. The basic notion is that school research will be both more credible and more useful to school persons if school people are central to formulating and carrying out the research. Further, the often-lamented time lapse between research and development (estimated variously to be from seven to twelve years!) is believed to be shortened when research payoff is readily apparent to potential users as a consequence of their participation in the studies. The interactive strategy requires that teachers and/or administrators participate in a team with one researcher and one developer (teacher educator). It is through the interactions of these roles that problems are identified, research strategies are formulated, findings are analyzed, and development activities planned. This is, as one might expect, a far cry from conventional school-based problem solving efforts but one which, in a so-far limited number of instances, can be very effective for staff development purposes.

Curriculum Planning

Although the histories of schools are dotted (some might say pock-marked) with attempts to involve teachers and others in situation-specific curriculum planning efforts, the experiences of many of us cause us to shy away from additional curriculum involvement. The reasons for this are numerous but I suspect that the principal one is that the involvement of teachers, for instance, has often been at the lip-service or cosmetic level. See, we involve our teachers -- look how democratic

we are! And then the results of our labors (and those endless meetings) are shelved, seldom to be seen again. A potential explanation for these failed efforts lies in the fact that few of the efforts took into account the authority structure of the school system and its attendant effect upon any planning and implementation efforts. As a consequence of studying curriculum planning in action and in theory (Griffin, 1979), I have come to believe that the Goodlad (1966) conceptual system for treating curriculum and instruction can be a useful guide to both curriculum planning and to staff development. Attending to levels of decision making as a means to clarify roles and responsibilities can be a means to identify necessary planning (and implementation) knowledge and skills and can lead to improved offerings for students and to increased knowledge bases for teachers and other school persons.

Conclusion

This brief statement describes in broad strokes the content of the session "Useful Research for Staff Development: An Eclectic Approach," planned for the Title I Seminar for the Central States. Naturally, each of the approaches, as well as the justification for their use, can be approached in more detail -- in the session and in the basic references which are noted below. It is hoped that they will provide groundwork for purposeful activities in Title I settings and in schools in general.

References

Bentzen, M. Changing schools: the magic feather principle. New York: McGraw-Hill Co., 1975.

Dillon-Peterson, B., Ed. Staff development/organization development. Washington, D.C.: Association for Supervision and Curriculum Development, 1981.

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Attachment 4

200

Concerns About an Innovation

1. Think about an interaction you have had recently with a faculty member (or other "client") that was related to an innovation he or she is using or considering using in the future. Describe some of the concerns expressed by that person about the innovation or its use:

2. WHEN YOU THINK ABOUT YOUR ROLE AS CHANGE FACILITATOR, WHAT ARE YOU CONCERNED ABOUT? (Do not say what you think others are concerned about, but only what concerns you <u>now</u>.) Please be frank and respond in complete sentences.

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ASSUMPTIONS OF THE CONCERNS-BASED ADOPTION MODEL (CBAM)

CHANGE IS:

-- PROCESS, NOT AN EVENT

-- MADE BY INDIVIDUALS FIRST, THEN INSTITUTIONS

-- HIGHLY PERSONAL EXPERIENCE

-- ENTAILS DEVELOPMENTAL GROWTH IN FEELINGS AND SKILLS

INTERVENTIONS MUST BE RELATED TO:

THE PEOPLE FIRST

THE INNOVATION SECOND

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STAGES OF CONCERN:
TYPICAL EXPRESSIONS OF CONCERN ABOUT THE INNOVATION

	STAGES OF CONCERN	EXPRESSIONS OF CONCERN
IMPACT	6 REFOCUSING	I HAVE SOME IDEAS ABOUT SOMETHING THAT WOULD WORK EVEN BETTER.
	5 COLLABORATION	I AM CONCERNED ABOUT RELATING WHAT I AM DOING WITH WHAT OTHER INSTRUCTORS ARE DOING.
	4 CONSEQUENCE	HOW IS MY USE AFFECTING KIDS?
TASK	3 MANAGEMENT	I SEEM TO BE SPENDING ALL MY TIME IN GETTING MATERIAL READY.
SELF	2 PERSONAL	HOW WILL USING IT AFFECT ME?
	1 INFORMATIONAL	I WOULD LIKE TO KNOW MORE ABOUT IT.
	0 AWARENESS	I AM NOT CONCERNED ABOUT IT (THE INNOVATION).

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STAGES OF CONCERN ABOUT THE INNOVATION

6 REFOCUSING: The focus is on exploration of more universal benefits from the innovation, including the possibility of major changes or replacement with a more powerful alternative. Individual has definite ideas about alternatives to the proposed or existing form of the innovation.

5 COLLABORATION: The focus is on coordination and cooperation with others regarding use of the innovation.

4 CONSEQUENCE: Attention focuses on impact of the innovation on students in his/her immediate sphere of influence. The focus is on relevance of the innovation for students, evaluation of student outcomes, including performance and competencies, and changes needed to increase student outcomes.

3 MANAGEMENT: Attention is focused on the processes and tasks of using the innovation and the best use of information and resources. Issues related to efficiency, organizing, managing, scheduling, and time demands are utmost.

2 PERSONAL: Individual is uncertain about the demands of the innovation, his/her inadequacy to meet those demands, and his/her role with the innovation. This includes analysis of his/her role in relation to the reward structure of the organization, decision-making and consideration of potential conflicts with existing structures or personal commitment. Financial or status implications of the program for self and colleagues may also be reflected.

1 INFORMATIONAL: A general awareness of the innovation and interest in learning more detail about it is indicated. The person seems to be unworried about himself/herself in relation to the innovation. She/he is interested in substantive aspects of the innovation in a selfless manner such as general characteristics, effects, and requirements for use.

0 AWARENESS: Little concern about or involvement with the innovation is indicated.

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SCORING EXERCISE FOR SCORING STAGES OF CONCERN ABOUT THE INNOVATION

1. I am very concerned about the time it is taking me to prepare materials, diagnose weaknesses and things necessary for the individualized program the innovation presupposes.

2. I believe the students need a longer student teaching experience and I think I can change this innovation to help students more with this experience.

3. I don't really know what the "innovation" involves.

4. I can see how a person could lose her personal identity when involved in the use of a new program. Group decisions may overrule what an individual would prefer to do.

5. The more successful I am with using the innovation the more concern I have about the need to incorporate fresh approaches and creative changes in our use like ... We could get in a rut.

6. Our program needs improved coordination and articulation about how we use the innovation in order that undue overlapping might be eliminated and gaps filled in.

7. Being a new faculty member, there is still a lot I don't yet know about how I'll use the "innovation," but I'm reading and asking questions.

8. In my own discipline, the use of the innovation would seem to force me to a cognitive level of instruction which is unacceptable.

9. I feel the need to find out the instructional support services needed for the "innovation" when we begin to use it.

From: Newlove, B. W. & Hall, G. E. A manual for assessing open-ended statements of concern about an innovation. Austin: Research and Development Center for Teacher Education, The University of Texas, 1976.

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EXAMPLES OF STAGES OF CONCERN ABOUT THE INNOVATION PARAGRAPHS

EXAMPLE 1

When I think about how this innovation may influence how others see me as a professional I wonder whether I want to become involved in it. I might have very little to say about how the innovation is implemented or who I would have to work with. I'm just not sure how it would fit in with the way I enjoy doing things, nor do I know how I'd be expected to change if we really get involved with this innovation.

EXAMPLE 2

Some of the students just don't seem to be catching on to this new individualized approach. They seem to need more monitoring, closer supervision, and less distractions. I wonder if my aide might concentrate more on them as a group, and if that might help.

EXAMPLE 3

Almost every night I wonder if I'll be able to locate and organize the material I will be using the next day. I can't yet prevent surprises that cause a lot of wasted time. I am not yet able to anticipate what things I will need to requisition for next week. I feel inefficient when I think about my use of the innovation.

Open-Ended Concerns Statement Task

Background

Spring, 1977: Introduction of program, Workshop I, and first use.

A new affective education program was introduced to 50 volunteer teachers from across the school district in the spring of 1977. The program focused on training and experiences for students in areas such as values clarification, problem-solving, and communication skills. In a March workshop, teachers were given ideas, materials, and program activities. That spring they began to use the program.

August, 1977: Workshop II.

A three-day workshop was scheduled for these same teachers for August 30 - September 1. On the morning of the first day, teachers were asked to complete an open-ended concerns statement: "When you think about the affective education program, what are you concerned about?"

1. Read the concerns statements for Teachers A, B, C, D, and E for August 30th only. These five teachers are representative of the fifty teachers attending the workshop. Score the Stages of Concern reflected in each statement. What stages are most common in the group?

2. What are some activities you might have done if you were conducting the workshop? Be as specific as you can without knowing the program in detail.

3. What are some of the other things you as a facilitator might have done outside the workshop to resolve some of these concerns?

4. Are there things you might have done that did not directly involve the teachers?

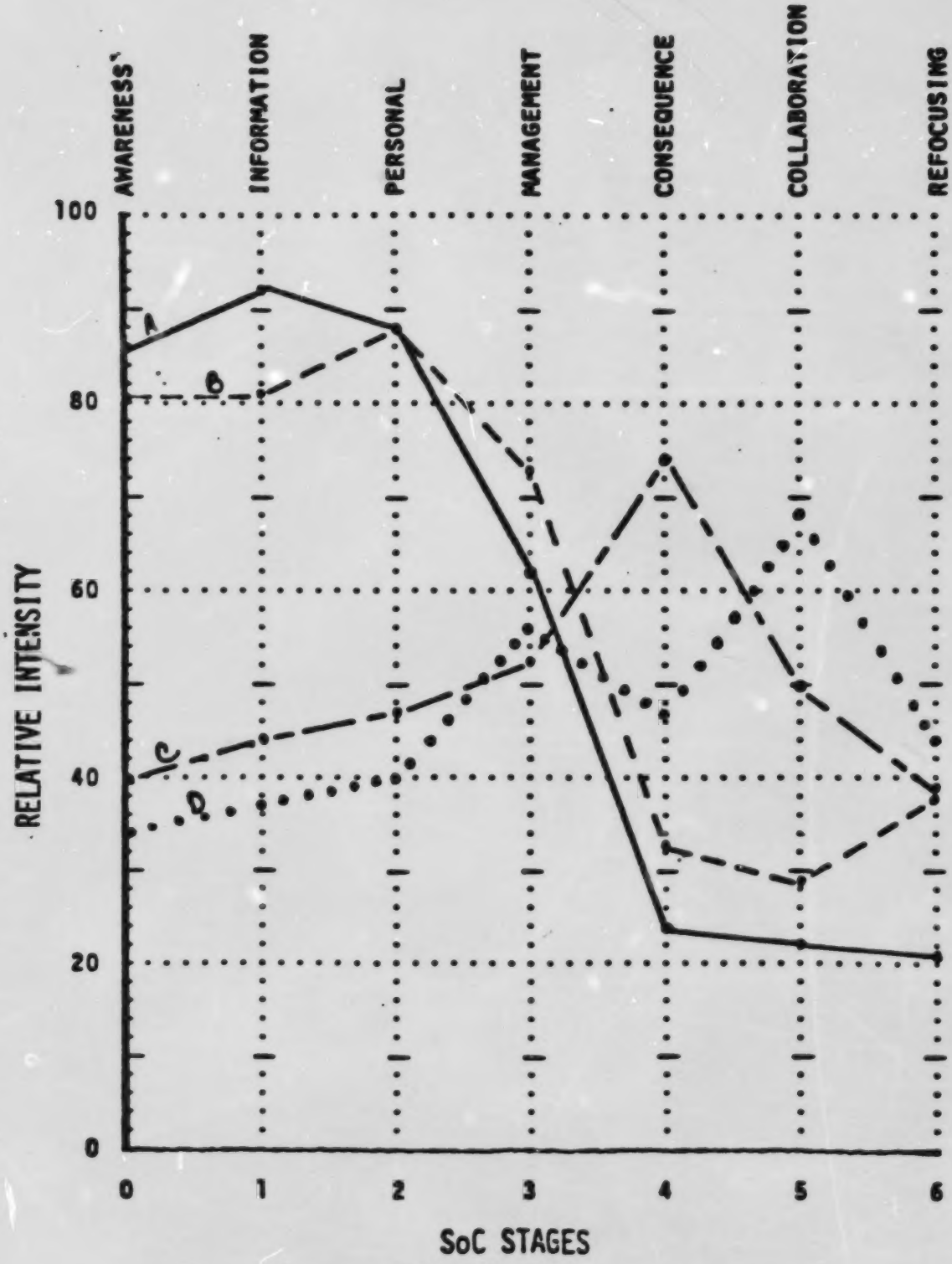
STOP FOR DISCUSSION

5. During the three-day workshop, the facilitator presented the teachers with more new ideas, materials and activities to use with students. Predict what concerns would be most intense for the teachers after the workshop, based on what he did.

6. At the end of the workshop, participants were again asked to write their concerns about the program, specifically whether and which of their concerns had been resolved and which they still had. Read the statements dated September 1. To what extent were teachers' concerns resolved?

7. What would you do at this point, after September 1, based on this new concerns data?

STAGES OF CONCERN QUESTIONNAIRE
DATA INTERPRETATION TASK



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Stages of Concern Questionnaire Data Interpretation

1. For each school (A, B, C, D) on this graph, what can you say about the teachers in the school?

2. What might be some general ways to intervene if your role was to facilitate use of the innovation?

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CFSoCQ QUICK SCORING DEVICE June, 1981

Date: _____

Site: _____ SSN: _____

Innovation: _____

Norms for CFSoC (35-item)

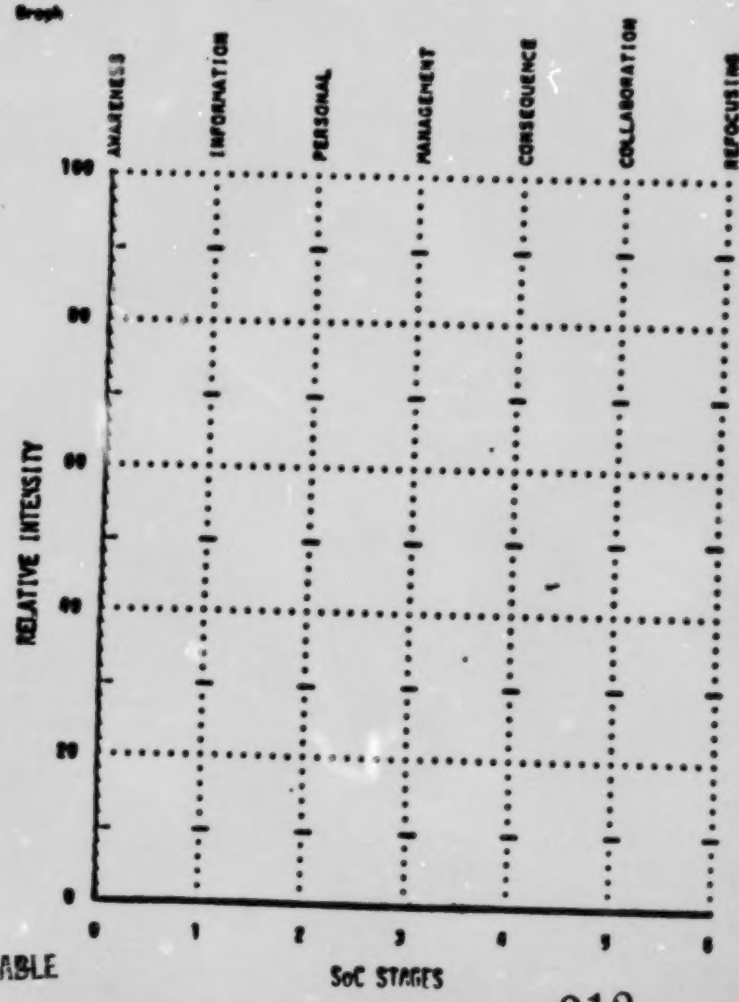
Five Item Raw Scale Score Total	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
0	0	1	0	0	0	0	0
1	1	2	1	1	0	0	1
2	2	3	2	1	0	0	3
3	4	5	4	2	1	0	5
4	7	8	7	2	1	0	8
5	14	13	12	5	1	0	13
6	22	18	18	8	1	1	18
7	31	21	24	11	1	1	23
8	40	26	30	15	2	2	31
9	48	30	34	19	2	3	39
10	55	34	39	22	2	3	47
11	61	37	43	26	2	4	55
12	69	40	49	30	2	5	63
13	75	43	56	35	3	7	68
14	81	46	62	40	3	8	75
15	87	49	68	44	4	9	81
16	91	53	73	50	5	12	86
17	94	56	77	55	6	15	89
18	96	59	79	60	7	18	90
19	97	61	81	66	9	21	92
20	98	64	86	71	11	24	95
21	99	66	87	76	13	28	96
22	99	69	89	78	16	32	97
23	99	72	91	82	20	36	97
24	99	76	93	86	27	40	98
25	99	79	95	89	33	43	98
26	99	81	97	91	39	48	99
27	99	84	98	93	46	54	99
28	99	87	99	94	54	60	99
29	99	89	99	94	62	67	99
30	99	92	99	95	68	72	99
31	99	94	99	96	74	77	99
32	99	96	99	97	82	82	99
33	99	98	99	98	87	85	99
34	99	99	99	99	91	91	99
35	99	99	99	99	97	97	99

0	1	2	3	4	5	6
2 ___	1 ___	8 ___	4 ___	6 ___	3 ___	13 ___
5 ___	7 ___	11 ___	14 ___	18 ___	9 ___	19 ___
10 ___	12 ___	17 ___	23 ___	21 ___	15 ___	26 ___
22 ___	16 ___	24 ___	28 ___	27 ___	20 ___	32 ___
25 ___	30 ___	29 ___	34 ___	31 ___	33 ___	35 ___ Total
Total ___	___	___	___	___	___	___	___

B. Percentile Scores

___ ___ ___ ___ ___ ___ ___ ___

C. Graph



BEST COPY AVAILABLE

LEVELS OF USE OF THE INNOVATION:
TYPICAL BEHAVIORS

LEVEL OF USE	BEHAVIORAL INDICES OF LEVEL
VI RENEWAL	THE USER IS SEEKING MORE EFFECTIVE ALTERNATIVES TO THE ESTABLISHED USE OF THE INNOVATION.
V INTEGRATION	THE USER IS MAKING DELIBERATE EFFORTS TO COORDINATE WITH OTHERS IN USING THE INNOVATION.
IVB REFINEMENT	THE USER IS MAKING CHANGES TO INCREASE OUTCOMES.
IVA ROUTINE	THE USER IS MAKING FEW OR NO CHANGES AND HAS AN ESTABLISHED PATTERN OF USE.
III MECHANICAL USE	THE USER IS USING THE INNOVATION IN A POORLY COORDINATED MANNER AND IS MAKING USER-ORIENTED CHANGES.
II PREPARATION	THE USER IS PREPARING TO USE THE INNOVATION.
I ORIENTATION	THE USER IS SEEKING OUT INFORMATION ABOUT THE INNOVATION.
0 NONUSE	NO ACTION IS BEING TAKEN WITH RESPECT TO THE INNOVATION.

CBAM Project
Research and Development Center for Teacher Education
The University of Texas at Austin

LEVELS OF USE: DECISION POINTS

DECISION POINT F Begins exploring alternatives to or major modifications of the innovation presently in use.	VI	RENEWAL
DECISION POINT E Initiates changes in use of innovation based on input of and in coordination with what colleagues are doing.	V	INTEGRATION
DECISION POINT D-2 Changes use of the innovation based on formal or informal evaluation in order to increase client outcomes.	IVB	REFINEMENT
DECISION POINT D-1 A routine pattern of use is established.	IVA	ROUTINE
DECISION POINT C Changes, if any, and use are dominated by user needs.	III	MECHANICAL USE
DECISION POINT B Makes a decision to use the innovation by establishing a time to begin.	II	PREPARATION
DECISION POINT A Takes action to learn more detailed information about the innovation.	I	ORIENTATION
	0	NONUSE

Scoring Exercise A

For Levels of Use of the Innovation

Directions: For each statement, indicate (a) the overall Level of Use, and (b) underline clues in the statement.

(a)

1. The teacher has made various attempts to get the new science equipment ready for next day's class without too much success. He's going to experiment with a grocery cart so he doesn't have to make so many trips around the room. (innovation: science program) ____

2. Her math modules are organized and she tested them out in class year. She'll use them just like she did then--they were quiet successful. (innovation: modules) ____

3. He's quite excited--Last month, for the first time ever, he and the teacher next door got together to "pool" their students; now each of them offers a different social studies unit, so students can choose the one that interest them and turns them on. (innovation: social studies program) ____

4. Six weeks ago she made up and began to use a self-checking system for her spelling program, so her pupils who can move more rapidly, don't have to wait for her. (innovation: spelling program) ____

5. The principal says the school will begin teaming in the spring, so this kindergarten teacher says he will try it them. (innovation: teaming) ____

6. He's going to his first workshop next week to see a demonstration of inquiry learning which the school is thinking of using. He's going to find out what it's all about. (innovation: inquiry learning) ____

Attachment 5

Treatment Day 1

		Personnel
9:00 - 9:30	Introduction	Gary
9:30 - 10:00	Objectives	Susan
10:00 - 10:10	Research Basis - Studies Major points 1. classroom-derived findings 2. sound methodology 3. amenable to translation into practice 4. related to needs of teachers	
10:10 - 10:30	Findings translated to behaviors Major points 1. findings related to learning environment 2. findings related to management of behavior 3. findings related to classroom instruction 4. findings related to teaching style	
10:30 - 10:40	Break	
10:40 - 10:45	Rationale for choosing specific teaching behaviors for study Major points 1. presence of desired behaviors 2. not all possible or even all desirable behaviors 3. not negative or unrelated behaviors	
10:45 - 11:45	Desired teaching behaviors Major points 1. awareness of desired behaviors	
11:15 - 11:30	Participant Reaction	
11:30 - 1:00	Lunch	
1:00 - 1:30	Application of teaching behaviors using classroom narratives I	
1:30 - 1:45	Discussion of results	
1:45 - 2:15	Application of teaching behaviors using classroom narratives II	

Treatment Day 1, continued		Personnel
2:15 - 2:30	Discussion of results	Susan
2:30 - 2:45	Break	
2:45 - 3:00	Application of teaching behaviors using video-taped classroom teaching (I)	
3:00 - 3:10	Discussion of results	
3:10 - 3:20	Application of teaching behaviors using video-taped classroom teaching (II)	
3:20 - 3:30	Discussion of results	
3:30 - 3:45	Reactions and conclusions	Gary

Treatment Day 2

		Personnel
9:00 - 9:20 .	Review of Day 1 and Introduction to Change Process	Sara
9:20 - 9:40	Objectives and Task Specifications	Sara
9:40 - 10:30	Consideration of the concept of Mutual Adaptation as it relates to staff development activities	Sara
10:30 - 10:45	Break	
10:45 - 11:45	Consideration of the concept of Organization Development as it relates to staff development activities	Gary
11:45 - 1:15	Lunch	
1:15 - 1:45	Consideration of the concept of Building-Based Staff Development	Gary
1:45 - 2:40	Consideration of the use of Support Networks in staff development programs	Sara
2:40 - 2:50	Break	
2:50 - 3:15	Application in terms of content objectives	Gary, Susan, Sara
3:15 - 3:35	Application in terms of setting	Gary, Sara
3:35 - 3:45	Reactions and Conclusions	Gary, Sara

Attachment 6

CHANGING TEACHER PRACTICE WORKBOOK

Research and Development Center for Teacher Education

The University of Texas at Austin

INSERVICE PLANS FOR _____
(school)

Prepared by _____
(name) (position)

Staff involved _____ teacher

_____ teacher

_____ principal

Research in Teacher Education Program Area

Gary A. Griffin, Program Director and Principal Investigator

Intervention Content

THE INTERVENTION PROCESS

223

Description of School and Classroom Regularities

Teacher Concern Profile

Staff Development Activities

Objectives	Description of Activity	Resources	Date	Evaluation

Provision for "on-call" assistance

227

Provision for peer observations and feedback discussion

Schedule and agenda for meetings

Provision for teachers to interact
with one another about teaching and schooling

Provision for objective, concrete,
and focused feedback to teachers

231

Provision for local materials development

Provision for inclusion of building principal in activities

233

Provision for directed reflection, analysis and decision-making by teachers

As a part of the effort to determine the extent to which the staff developers make conscious use of the findings from research and of the data about the setting into which they introduce their interventions, RITE staff will conduct an interview with each of the participants, asking the reasons for each of the activities and decisions reported in the inservice plan workbook. The interview will be recorded for later analysis.

QUESTIONS

1. How did you obtain the information used in writing the description of the school and classroom regularities?

2. How did you obtain the infromation used in preparing the teacher concern profile?

3. (for each of the items appearing in the workbook) Please explain for me as fully as you can the points which you considered in making the decision to include this item. What alternative, if any, did you consider? Why did you decide to use this one?

ANALYSIS

Each response will be coded as one of the following:

1. based on SD behaviors included in the study
2. based on T behaviors included in the study
3. based on other research findings--SD and T
4. based on experience
5. no choice perceived
6. unsure/does not articulate reason

Score is percentage of 1 + 2 + 3 of total number of responses.

Attachment 7

CLASSROOM NARRATIVE

T# 182

Subject Math

Grade 4

There were 22 Ss in the classroom; one student is sitting outside of the observer's view at all times; the students are taking a test from the overhead projector, a math test, basically simple multiplication facts. The T is in the classroom alone; the Ss are beginning to turn in their work. The T is standing by the desk with her arms crossed scanning the classroom. More Ss get up and turn in their papers. The T continues to watch them. The Ss who had finished have books on their desks and begin to open the books. Two Ss are whispering; the T calls out, "John Peter and Michelle." She looks at them; they are the two Ss who had been whispering. "This test is still going on," she says. They continue to whisper, maybe somewhat softer. She calls out, "John Peter." At this he becomes quieter and does not whisper anymore. The door to the next room is open somewhat, so some noise comes from the next room. The Ss are sitting in their desks; they are fairly quiet. The time was 9:09. The T continues to scan the room; (observer notes she has a stern expression on her face which does not change.) Ss who finish continue to work on what appears to be the math book. T walks around behind the desk and stands. She continues to scan the room. Jason and a girl at his table are whispering, and at other tables 2 or 3 Ss are whispering very softly. At 9:12 the T turned the overhead projector off, and said, "Okay, hand in your

CLASSROOM NARRATIVE

T# 182

Subject Math

Grade 4

papers." Apparently three Ss were the only ones still working on the test; they hand in their papers. The T picks up the new papers; she says "Joe, go back to your seat now." Joe is the student who has been sitting at one of the bigger tables; and he goes back to one of the separated seats. The T says, "The tables should be cleared and ready for grading." Then she mentioned somebody's name and says "I'm proud of you." And then she says "Bertha is ready." The T then begins passing out the papers. She walks through the room handing each person a paper. Michelle turns around to the boy Alfredo who sits by himself. Michelle helps the little boy with his math. She explains some processes that could be used to achieve the correct answers. (Observer opinion: Michelle seems to be very knowledgeable and knows exactly what she's doing.) The T walks by and speaks to her as she's passing out the papers. Michelle turns around. The door at the back of the room is closed. The T is finished passing out the papers; she stands at the front of the room and she waits. The T says "Jason, are you ready yet?" She waits for him approximately five seconds to get settled. The T says "Okay now, when you're reading, read only the answer." Then she begins very quickly to call off the name, Number 1" and the student gives the answer: "Number 2, Alex," the student gives the answer. One S that the observer cannot see appears to be washing his hands or

CLASSROOM NARRATIVE

T# 182

Subject Math

Grade 4

something. The pattern continues: "Number 6, Vita." Vita says "37,000." "Number 7, Donna." "640." (Observer notes that the T repeats each student's answer and then goes on and calls on the next person.) In some cases if the student says "72,000," the T says "72,000; that's 72, 0, 0, 0." This continues. Now the little boy whom I cannot see gets up and comes around the the pencil sharpener and then goes back and sits down. If he is grading a paper, he has missed correcting a few answers. He goes back and sits down. Ss raised their hands asking, waiting to be called upon to contribute. The T does not necessarily call upon them. She calls at random on people. Sometimes she calls on somebody who has their hand up; sometimes she calls on someone who may not be paying attention. The student who has been sharpening the pencil still has not begun grading anything. "Number 9, John Peter." One student is sitting right next to the front blackboard completely separated from the classroom. He cannot see anyone. The T is behind him, so his back is to the rest of the class. The students are very quiet; they appear to be attentive; none has been corrected to this point. "Number 24, Alfredo." Alfredo says "2,700." The T repeats this. Then she says for numbers 25, 26 and 27 you have four answers. She says "25-A, Pete; 25-B, Laurie;" and she continues with these last questions. At 9:19 the T is still repeating, calling on different Ss; they give the

CLASSROOM NARRATIVE

T# 182

Subject Math

Grade 4

answers and the T repeats it. All the Ss appear to be called upon at this time. The T has not changed her voice or facial expression during this entire observation. The T says "Okay, 27-D is 1,000." One student says he did not have it correct; and the T says "Okay, let's count up the number correct and put them over 36." There are some conversations, students are heard to say "You got 31 over 36." Quite a bit of noise now as Ss get up to go see what they made or they yell across to someone their grade. It is not entirely bedlam, but it is louder than it has been. At this time two Ss are up. The T goes over to the overhead projector and unplugs it. She says "Okay, Table 2, turn in your papers. The conversation continues. The T calls "Table three." No student is seen to move at this time. Table 3 is called again. One student gets up to hand in the papers. "Table 4." The T is now speaking louder and trying to talk over student conversation. Table 5 is called. Procedure appears to be for one student to take the papers from one table and carry them up to the T's desk. The T says "Okay, you should have your books open." The T walks around the room and hands out little green slips of paper. (Observer note: I believe this is in reference to the merit/demerit system in operation at this school. The T makes no explanation. She appears to be handing these out to students who are ready to go.) A student asks the

CLASSROOM NARRATIVE

T# 182

Subject Math

Grade 4

teacher a question. The T answers and says "You're not ready to begin." She does not give the student a green piece of paper. Michelle continues to talk. The T now walks to the front of the room and stands. The room begins to get quieter. The T was waiting. She says "Yesterday, we were doing..." She begins an explanation for the math lesson. She says "Today we're going to do numbers like 4,500." And she writes this on the blackboard. She writes 9 x 500 = 4500. "Now if we have something like 6 x 80, that would give us 480." A student says "400?" The T says "Well, 6 x 8 is 48 with one 0." And a student says "Oh, that's easy." The T says "Right. If we had something like 5 x 600?" The T looks around the room; there's some whispers; four hands are help up. The T waits; she says "What would our answer be?" She continues to wait until approximately half the hands are held up. Then she calls on someone who says "Three thousand." The T says "Okay, three thousand;" she says "five times six is thirty and two zeros." (The T here is using colored chalk. She uses one color, blue for the numbers like 5, 6, and 7, and a light orange for the zeros.) The T says "Now where would our comma go?" No call outs at this time, but the students continue to raise hands. The T called on Alfredo who says "Between the 3 and the zeros." The T says "Correct, you count back, one, two, three and you put the comma." The T

CLASSROOM NARRATIVE

T# 182

Subject Math

Grade 4

said, "What if you had something like 10 x 100?" What would our answer be?" The hands are help up; the T calls on Jacob. Jacob says, "Huh?" The T said, "If we had 20 x 30, what would the answer be?" Jacob says "Six thousand." The T says "Correct." There is some conversation in the classroom and some wiggling. The T says "Where would the comma go?" and calls on another name. The student says "Between the 6 and the 0." The T says "That's right; you take the --" Daniel tries to interrupt at this time; he says something like "Well, what you do is --" The T continues talking. Daniel again tries to interrupt during the pause and says again "Well, it's like you take the --" But he gives up. The T says "Well, what if we had --" At this time some students are not thoroughly paying attention with great dedication. They're squirming; and some people are playing with their hair. But the observer cannot say that they're actually off-task. They're not talking or visiting. Two students at the front of the room now begin visiting. They're two little girls; and they're whispering. One of them is showing the other one her bracelet. Five students have their hands up waiting to be called upon. The T says "Jacob, put your book up." And Jacob closes the book and smiles. The T says "Now what's 600 x 400?" She calls upon Daniel who says "24,000,000 - 6 zeros." The T says "Yes, that's correct." And she writes down 240,000 (which

CLASSROOM NARRATIVE

T# 182

Subject Math

Grade 4

is, the observer notes, the correct answer.) Some students are beginning to work on their homework. The T says "Don't start yet; I'm not through with your instructions." She says "Now, on 25 through 30, you're writing the whole table." Students are heard to whisper "Jason." Jason has apparently begun working on his homework. The students are now visiting. The T writes on the board 25 through 30, and she says "Go ahead and begin working." The students begin talking; they're not excessively loud, but there are some conversations. The T says as they're talking "I will be handing out a ditto for your homework." The T walks over to one little girl and begins explaining the assignment to her. Two hands are held up next to this little girl. Two students are at the pencil sharpener; eventually five people end up at the pencil sharpener. The T says "Okay, there should be only one person at the pencil sharpener." Now three people have questions about the homework. The T says "No, you do the tables." "Oh." Another hand is held up; the student says "Do you write the problem or do we just write the answer?" The T returns to the blackboard and completes writing the instructions for the homework. The instructions are: 'page 132, 1 through 27 (answers only)' and then under that she writes 'tables for 25, 26 and 27.' Students begin to settle down to work; the room appears to be quieter. Five or six students at any time are talking;

CLASSROOM NARRATIVE

T# 182

Subject Math

Grade 4

several are talking about their math. The T says "You all will do your own work. Michelle, you don't have to use that. Michelle has apparently been using a multiplication chart. Michelle picks it up; she says as she does so "Yes, I do." At least one person at each table continues to talk. The T continues to circulate through the room, and she says "Be sure that you put the commas, because if you don't, it will be counted off." Now some students are talking, and in the observer's opinion did not hear this instruction. Michelle continues to talk as she works through her problems. She talks to herself - a continuous stream of conversation here. The T circulates through the room and places ditto papers on the various tables. Daniel asked a question. The T says "Well, it starts out 30, 60; now what would be next?" And Daniel says "90." She comes over to him and points out some things on his paper far enough away from the observer that the observer could not hear what was being said. At this point seven of the students are talking to each other. A student holding up the ditto says "Well what do we do with this?" The T says "Well, this is your homework. You do it after you finish this." Another student, as T passes out the papers walking through the room, says "Well, what's this?" The T says "Homework." The student says "Oh, well that's easy." One student has the multiplication chart and is looking at it as he does his

CLASSROOM NARRATIVE

T# 182

Subject Math

Grade 4

homework. One hand is held up; the T coughs, and returns to the desk, puts the papers down, and goes over the person with her hand up. The T goes back to the person who she began helping when they first started the assignment. She kneels down and says "Well, now do you know your threes?" The student says "Well this is a 130; this is 140." The T said "Yes, that's the same as what you did over here," and points to something on the page. The student who had been working with the multiplication table has finished or is not working on his math, and he cleans out his desk. The T says "You all be careful with your commas; if you put them in the wrong place, they're going to be wrong. You may need to check this before you hand in your homework." The T has picked up one of the homework papers on the desk and is looking at it. One of the students asked if she could go to the bathroom; the T says "Yes." One student comes up to the T with a paper and asks for some help. Students are quieter now. The T then appears to correct one little girl who's next to Jason, but the conversation was too soft to be heard. Daniel gets up to turn in his paper. The T goes over, kneels down and helps another student. She says "After nine, yes, that's okay; be sure to put the zeros in now." The T continues to circulate. The students are very quiet. One boy gets up and goes to the T. At 9:44 the T said, "You all look up here. There's a lot of people

CLASSROOM NARRATIVE

T# 182

Subject Math

Grade 4

missing this." The T is standing at the blackboard. The little boy leaves now. Twelve students did not stop to watch the T who gave an explanation about the zeros. After this, the T says "Okay, Table 1, line up for reading, Alfredo, Jeff." One student asked a question. The T says "Yes, more of them got finished." One student goes up to the observer's desk and visits with the observer, sits down with his reading book. Alfredo gets up and goes back to the back door. The students begin to converse -- medium level. Back door opens wider and four students are now lined up at the back. The T says "Daniel, you need to line up." At this point students begin entering from the next room, and the observation ended.

CLASSROOM NARRATIVE

T# 184

Subject Reading

Grade 3

1. At this point the T says "One, two, three, four, five, thank
2. you, class," as she gets their attention. Everybody goes
3. back to the desks and puts the games away. The transition
4. is very swift and quiet. There is one student near me,
5. clearly not in tune with what's going on, Johnny. Johnny is
6. called back by the T. At this point the aide leaves. The T
7. continues "We're going to meet in our groups. I'm going to
8. put up some seat work. Tell me if you think it's short
9. enough." She explains that at this time they are running a
10. little late and they agree that they need a shorter amount
11. of seat work. She writes on the board "1. Chart, 2.
12. Barnell-Loft" then puts the compound chart up. This
13. compound chart consists of compound words. The T says,
14. "What is a compound word? Two words which go together?
15. Alright, read this "postman," and their hands wave
16. frantically. The chart has words such as postman, farmyard,
17. streetcar, and seesaw upon it, and then there are four
18. sentences with a fill-in-the-blank. Four students with
19. their hands up are called on to read the words in turn.
20. Then instructions are given. At this point it becomes clear
21. that the class is going to be divided into two groups.
22. There is some transition at this point as the students move
23. around. "Oh reds," says the T, and the reds begin working
24. at their tasks quietly in their seats. Blues are on the
25. carpet reading with the T. Michael begins to read slowly.

CLASSROOM NARRATIVE

T# 184

Subject Reading

Grade 3

"It was a noise," he reads, "it sounds like footsteps." T says "I think the print is too small. Here," giving him a cleaner copy, and he continues to read "in the dark he could just make out his house." And the story continues with the CT occasionally checking on a word as it continues. The reds are working at seat work as assigned. Two are finished at 9:13 and come and turn in their work at the shelf near me. Then they get books, games, and other materials which have been sanctioned by the teacher. Erica is one of the reds who finish first. The blues are still on the carpet at 9:15. The T stands to look at the reds. More of the reds are finished. Most appear to be going on with work assigned to them. The blue reading group pushes on, with T giving lots of praise. T: "Did you like that story? Why did you like it, Steven?" They talk informally about their views. The book has funny pictures. CT then explains what is meant by the illustrator of a book. "The illustrator," T says, "is the one who drew the pictures." "I need my reds on the rug. One, two, three, four, five." It is now 9:22. T. "Tell me which page you're on." Chorus. "Twenty-nine." T. "Yes, 29. Yes, Carol's first. She had her hand up. I want to watch the word she says. The more you watch the words, the easier it will be." It is now 9:24. "Page 29," says the T, "Bob. Thanks Michele. Okay, I'll wait until you're ready." The reading then continues. The blues are busy

CLASSROOM NARRATIVE

T# 184

Subject Reading

Grade 3

with the seat work. One student comes in after having been to the bathroom. He places a large key on the hanger by the door and sits down. Two students from the blue group leave the tables to which they had been assigned and approach where I am sitting, and there is a game on the table in front of me. One student says "That's a math game," to the other one, "Dummy, we can't play math games." They return. 9:27. The blues are down to six in number, and they seem to be talking, but it may well be on-task. CT: "Okay, let's look at that word. It was a word on our chart, 'clattering'." "Sheldon," she says to him, and he is lying on his back, "if you practiced at home, you would soon get it." And there is a good of encouragement for his effort. Someone in the blue group finishes and turns in the work. The reds continue to read on the rug. At 9:30 another in the blue finishes, but there is no disruption as they hand in papers and find other materials to work on. One of the readers continues "Don't go on a Sunday." And the T interrupts "Won't," she says. "That is a contraction of will not. We talked about that the other day." The sense of order in the blue group is disintegrating. They are all obtaining other sanctioned materials. "Ronnie, I'm sorry," says the T, and his name goes up on the board. Ronnie appears to be in the blue group. "Suzanne, what does 'comprehension' mean?" Suzanne answers. They have just

CLASSROOM NARRATIVE

T# 184

Subject Reading

Grade 3

finished the story on the rug. "We are going to use this to check to see if you have understood the story. Now, on page 3?. All sit up." And all the students sitting with the teacher sit up. "Wilber hasn't had a chance yet. Read question one, Wilber, and then you may ask anyone of these students here to answer for you." So Wilber assumes the role of the teacher. 9:36. "Good work," she praises one student who answers, "you remembered 'disguise.' Go ahead," and the comprehension check continues. All are on-task. Another student enters, then goes back out. At 9:40 the T calls "Okay, one, two, three, four, five," and it's quiet as usual. Xavier, you know what to do." The T is working with the reds, but up at the chalkboard, and she announces to them that this is going to be a review. She writes on the board 'scare,' 'scout,' and 'score.' "What are they? What do you notice about them?" she asks. 9:42. "Put the lid on," she says "Close your folder." "Let's raise our hand, Misty. Here," and she adds 'scowl' and scold.' At 9:43 "When you come to big words," she says, "you must break away those parts that you already recognize." The children get the idea that they are looking here for the 'sc' beginning of the words. At 9:43 another series of words is written on the board: 'small,' 'smart,' and 'smell.' "What do you identify about them?" the T asks, "Tina" And Tina is asked to fill in another one, 'smash.' "Kenny, this is yours."

CLASSROOM NARRATIVE

T# 184

Subject Reading Grade 3

1. and she gives Kenny a list written on the board, 'snail,'
2. 'snake,' 'sneeze.' He identifies them and he identifies the
3. 'sn' beginning of the words. "Kenny, what is this?" and she
4. writes 'snear.' Joseph gives a big yawn. The T notices
5. this and asks what time he went to bed, and it transpired
6. that it was 10 o'clock to which she responds "Too late."
7. There is a bit of noise. The T turns to the blue group and
8. says "I'm sorry blues." 9:45. T is still working on the
9. chalkboard. The words are 'space,' 'spatter,' and 'speak.'
10. "Okay, what's this?" "Spark," says Laura. Laura gets
11. another list, 'swam,' 'swing,' 'swim.' At this point the T
12. writes on the board, Sheldon, Michele. All of a sudden it
13. gets very quiet and everyone seems to be back on task. The
14. T adds another list of words, 'knee,' 'knelt,' 'knight,' and
15. begins to talk about the silent letter in the words.
16. "Misty, good answer," she says, "but try to wait a minute so
17. that others can try. If you look in a dictionary you will
18. find," and she writes 'ne' with a stroke over it, and
19. explains. They have clearly seen this before. "This you
20. also have in second grade," and they agree. She wrote out
21. the list 'wrong,' 'wrote,' 'wren.' "Okay, say them again.
22. What's silent?" The response is given. "Right, We never
23. hear the 'w'. Here's another, 'wrist.'" At 9:50 we are
24. talking about another list, and she is explaining the
25. 'schwa' sound, which is spelled 's-c-h-w-a' and is written

CLASSROOM NARRATIVE

T# 184

Subject Reading

Grade 3

as an upside down 'e' in the dictionary, which she writes on the board. She explains that it is the first sound in such words as 'ago,' 'aboard,' 'again,' and insists it is a very soft sound and they all say it, which they do. 9:52. She writes 'heel,' 'feel.' "Do they rhyme?" And then 'wheel,' and 'kneel.' She again tells them that when they look in the dictionary, this is what they will find 'h' and then 'e' with a line over the top, and an 'l'. 9:53. She praises them. "So I'll move you on to page five in the workbook. Yes, they workbooks are beautiful." The red group follows their directions. The T sets the group working on their own. 9:55. They do and with productive murmuring. T says "The blues are completing their work." The T then checks the students and continues walking around the room.

Attachment 8

253

Videotape #1

Effective Classroom Management in the Elementary Classroom
Available through the Association for Supervision and
Curriculum Development, Alexandria, Virginia

A well organized elementary teacher greets and orients her new class. She explains rules and procedures to be followed during the year, each of which has been found to contribute to an orderly and efficient classroom.

Videotape #2

This film was part of data collected for a research project at the Research and Development Center for Teacher Education. It depicts a teacher working through a social studies unit on traveling in covered wagons to settle the west coast of the United States. This teacher uses a problem-solving format by providing her students with fictional situations that occurred on wagon trains in route to the west.

Attachment 9

Concerns Questionnaire

Name _____

or

Last four digits of your Social Security No. ___ ___ ___ ___

The purpose of this questionnaire is to determine what you are thinking about regarding your responsibilities as a change facilitator for an innovation. It is not necessarily assumed that you have change facilitator responsibilities. This questionnaire is designed for persons who do not serve as change facilitators as well as for those who have major responsibility for facilitating change. Because the questionnaire attempts to include statements that are appropriate for widely diverse roles, there will be items that appear to be of little relevance or irrelevant to you at this time. For the completely irrelevant items, please circle "0" on the scale. Other items will represent those concerns you do have, in varying degrees of intensity, and should be marked higher on the scale.

For example:

This statement is very true of me at this time.	0	1	2	3	4	5	6	(7)
This statement is somewhat true of me now.	0	1	2	3	(4)	5	6	7
This statement is not at all true of me at this time.	0	(1)	2	3	4	5	6	7
This statement seems irrelevant to me.	(0)	1	2	3	4	5	6	7

Please respond to the items in terms of your present concerns, or how you feel about your involvement with facilitating _____ (please specify the innovation). We do not hold to any one definition of this program, so please think of it in terms of your own perceptions of what it involves. Remember to respond to each item in terms of your present concerns about your involvement or potential involvement as a facilitator of the above named innovation.

Thank you for taking time to complete this task. Please feel free to write any comments, reactions, or questions you may have about the items on the questionnaire. Also, use the last page to express any additional concerns you have about the innovation or this questionnaire.

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0 Irrelevant	1 Not true of me now	2	3 Somewhat true of me now	4	5	6 Very true of me now	7

1.	I would like more information about the purpose of this innovation.	0	1	2	3	4	5	6	7
2.	I am more concerned about facilitating use of another innovation.	0	1	2	3	4	5	6	7
3.	I would like to develop working relationships with administrators and other change facilitators to facilitate the use of this innovation.	0	1	2	3	4	5	6	7
4.	I am concerned because responding to the demands of staff relative to this innovation takes so much time.	0	1	2	3	4	5	6	7
5.	I am not concerned about this innovation at this time.	0	1	2	3	4	5	6	7
6.	I am concerned about how my facilitation affects the attitudes of those directly involved in the use of this innovation.	0	1	2	3	4	5	6	7
7.	I would like to know more about this innovation.	0	1	2	3	4	5	6	7
8.	I am concerned about criticism of my work with this innovation.	0	1	2	3	4	5	6	7
9.	Working with administrators and other change facilitators in facilitating use of this innovation is important to me.	0	1	2	3	4	5	6	7
10.	I am preoccupied with things other than this innovation.	0	1	2	3	4	5	6	7
11.	I wonder whether use of this innovation will help or hurt my relations with my colleagues.	0	1	2	3	4	5	6	7
12.	I need more information about and understanding of this innovation.	0	1	2	3	4	5	6	7
13.	I am thinking that this innovation could be modified or replaced with a more effective program.	0	1	2	3	4	5	6	7
14.	I am concerned about facilitating use of this innovation in view of limited resources.	0	1	2	3	4	5	6	7
15.	I would like to coordinate my efforts with other change facilitators.	0	1	2	3	4	5	6	7
16.	I would like to know what resources are necessary to adopt this innovation.	0	1	2	3	4	5	6	7
17.	I want to know what priority my superiors want me to give this innovation.	0	1	2	3	4	5	6	7
18.	I would like to excite those directly involved in the use of this innovation about their part in it.	0	1	2	3	4	5	6	7

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0 Irrelevant	1 Not true of me now	2	3 Somewhat true of me now	4	5	6 Very true of me now	7

19.	I am considering use of another innovation that would be better than the one that is currently being used.	0	1	2	3	4	5	6	7
20.	I would like to help others in facilitating the use of this innovation.	0	1	2	3	4	5	6	7
21.	I would like to determine how to enhance my facilitation skills.	0	1	2	3	4	5	6	7
22.	I spend little time thinking about this innovation.	0	1	2	3	4	5	6	7
23.	I see a potential conflict between facilitating this innovation and overloading staff.	0	1	2	3	4	5	6	7
24.	I am concerned about being held responsible for facilitating use of this innovation.	0	1	2	3	4	5	6	7
25.	Currently, other priorities prevent me from focusing my attention on this innovation.	0	1	2	3	4	5	6	7
26.	I know of another innovation that I would like to see used in place of this innovation.	0	1	2	3	4	5	6	7
27.	I am concerned about how my facilitating the use of this innovation affects those directly involved in the use of it.	0	1	2	3	4	5	6	7
28.	Communication and problem-solving relative to this innovation take too much time.	0	1	2	3	4	5	6	7
29.	I wonder who will get the credit for implementing this innovation.	0	1	2	3	4	5	6	7
30.	I would like to know where I can learn more about this innovation.	0	1	2	3	4	5	6	7
31.	I would like to modify my mode of facilitating the use of this innovation based on the experiences of those directly involved in its use.	0	1	2	3	4	5	6	7
32.	I have alternate innovations in mind that I think would better serve the needs of our situation.	0	1	2	3	4	5	6	7
33.	I would like to familiarize other departments or persons with the progress and process of facilitating the use of this innovation.	0	1	2	3	4	5	6	7
34.	I am concerned about finding and allocating time needed for this innovation.	0	1	2	3	4	5	6	7
35.	I have information about another innovation that I think would produce better results than the one we are presently using.	0	1	2	3	4	5	6	7

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PLEASE COMPLETE THE FOLLOWING:

36. Male ____ Female ____

37. Age ___ 20-29 ___30-39 ___40-49 ___50-59 ___ 60 or over

38. What, specifically, is your current position (e.g. Dean, Regional Service Center Evaluator, Secondary School Principal) _____

_____

39. How many years have you been in your current position? _____

40. In total, how many years have you been in position similar to the one you have now?

_____

41. How long have you been involved with the implementation of the innovation you focused on for this questionnaire? Years ____ Months ____

42. Are you currently involved in implementing any other innovation? Yes ____ No ____

43. Use this space (and back of this page) to express any concerns you have not been able to indicate in the questionnaire.

44. What do you hope to learn from this workshop?

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Attachment 10

Format of Interview with Staff Developers
January 12, 1983

1. How would you describe your staff development work this year in terms of purposes and strategies?

2. How would you evaluate your own effectiveness?

3. Did you do anything that you could trace to participation in this study?

4. What did you do that you would do again? Why?

5. Did you:

   a. provide teachers with opportunities to interact with one another about teaching and schooling

   b. provide teachers with opportunities to observe one another and to discuss what was observed

   c. provide teachers with opportunities to plan together and to implement the plans

   d. provide teachers with feedback which is objective, concrete, and focused (How)

   e. adapt staff development behavior according to personal and organizational characteristics of "users"

   f. demonstrate knowledge of "effective" teaching as revealed by research

   g. provide in-classroom technical assistance (e.g., coaching) to teachers

   h. provide teachers with specific, concrete resources

   i. engage teachers in problem identification and solution formulation and testing activities

   j. provide teachers with evidence that "teachers can make a difference" in pupil outcomes

   k. link teachers to technical assistance outside the immediate school environment

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   l. diagnose individual stages of concern of teachers

   m. formulate interventions based, in part, on teachers' stages of concern

Question 5. continued

n. include the building principal in activities designed to help teachers be more effective

6. How would you estimate the degree to which your target teachers demonstrate the effective teaching behaviors as defined by the study? How do you know? Do the teachers know this? How?

7. Did you use the observation system we discussed in October? With what consequences/Why not?

8. How do your target teachers compare to others in this school (in terms of the teaching behaviors)?

9. What plans do you have for the near future in terms of promoting the effective teaching behaviors?

10. Can you describe how you make decisions about what to do in terms of staff development?

11. What are the principal problems you face in doing staff development?

12. How would you describe an "ideal" teacher for this school?

13. Do you think your journal entries adequately describe your staff development work?

14. Did your participation in the study influence your professional activity? How?

15. Describe your impression of the response of your target teachers to your staff development work.

16. If everyone in the district were given the opportunity to participate in the same experiences you did in August, would you urge them to do so or not? Why?

17. What would you change to make that experience more valuable?

Appendix B

Guidelines for Teachers' Journals

The purpose of this journal is to provide an ongoing record of your inservice interactions. In this record we would like for you to include your own interpretations and analyses as well as descriptions of what occurs. The journal will be kept confidential. Neither your principal nor the staff development person will see your journal. You will be assigned a research number which will be used for identification.

We are interested only in the content of these records, not in the composition form or sentence structure, so it is unnecessary to spend time editing or rewriting. We are interested in <u>what</u> you have to say, not in <u>how</u> you say it. The following guideline questions provide focus for your journal entries and the examples of journal entries illustrate the type of information which will be helpful to our study.

1. What was the specific purpose of the interaction? Was it a planned formal interaction or a spontaneous informal meeting? Was it initiated by the staff developer or by yourself?

2. What was the focus of the interaction? Were specific teacher behaviors discussed? Were student outcomes considered? What was the major concern of the staff developer? What was your major concern?

3. What was the nature of the interaction? What happened? What activities took place?

4. What was the context of the interaction? Where did the interaction take place? Was it in a large group or one-to-one or in a small group setting? Were the surroundings comfortable? What authority figures were present?

5. To what degree and in what manner were specific teacher behaviors dealt with?

6. How was the content of the inservice interaction presented to you? What was the structure of the interaction?

7. What were the results of the interaction? What did it do for you?

8. Did this interaction seem to be an isolated inservice activity or did it seem to be a part of an ongoing process of inservice toward a more long-term goal? If the latter, what is that long-term goal?

9. How would you evaluate the interaction? In what way and to what degree was it helpful? useless? detrimental?

10. What questions, frustrations, or problems did you experience?

11. If you were in charge of the staff development activity how would you present the information? In what ways would you have changed the structure of the interaction?

Please include any additional information which you feel might help us to answer the question: What did persons responsible for staff development activities do that was helpful to teachers in their efforts to raise the achievement levels of their students in the areas of reading and mathematics?

Appendix C. Barnes Teacher Observation Instrument

A. Planning and preparation
1. t. allocates time per academics
2. t. posts assignments for day
3. t. posts assignments for week
4. t. provides calendar w/ass'mts

B. Presentation
1. t. gives/seeks rationale for lesson
2. t. presents new info. or content
3. t. refers to previous lesson content
4. t. uses materials
   a. kinds
   b. supply
   c. corrections made
5. t. divides complex tasks into steps
6. t. gives demonstration
7. t. uses concrete examples
8. t. makes comparisons
9. t. points out patterns
10. t. uses ex. related to Ss interests
11. t. gives directions
12. t. relates new activity to previous or future activity

C. Interactions
1. t. asks questions where Ss provide "the" answer (Product ques.)
   a. correct
   b. incorrect
   c. no answer
2. t. asks questions where Ss provide "how" and "why" (Process ques.)
   a. correct
   b. incorrect
   c. no answer
3. t. calls on Ss
   a. non-volunteers
   b. in predetermined pattern
   c. accepts callouts
   d. volunteers - hands up
4. t. waits for Ss to respond to ques.
5. t. explains "how" or "why" the ans. was obtained (process explanation)
6. t. accepts academic comments by Ss during lesson
7. t. accepts content questions during lesson
8. t. accepts procedure questions during lesson
9. t. answers content questions asked by Ss after instruction
10. t. answers procedure questions asked by Ss after direction-giving

D. Practice
1. t. conducts practice over new (or old) material in whole group
2. t. checks Ss responses for correctness
3. t. provides feedback
4. t. moves around classroom
5. t. reminds Ss that they should be working or participating
6. t. reminds Ss that work will be checked

E. Seatwork
1. t. watches class after making ass'mt
2. t. reacts to Ss not complying with assignment
3. t. circuletes as Ss work
4. t. scans seatwork as Ss work
5. t. gives individuals assistance
6. t. assigns extra credit work to more able Ss
7. t. assigns work using higher cognitive levels (analysis or above)

F. Holds Ss responsible for ass'mts
1. t. makes daily homework ass'mts.
2. t. tells Ss their work will be checked
3. t. tells Ss they must complete ass'mt
4. t. makes ass'mts using procedure
5. t. has Ss record ass'mts in designated place
6. t. requires Ss to keep notebooks to store assignments
7. t. collects assignments daily
8. t. checks/grades papers
9. t. returns graded work to Ss
10. t. communicates make up work to Ss
11. t. relates Ss work to grades

G. Organizes classroom
1. t. allocates time to teach rules/procedures
2. t. states, posts, or write rules/procedures

H. Presentation of rules/procedures
1. t. provides/seeks a rationale for rules and procedures
2. t. communicates to Ss desired attitude
3. t. communicates to Ss desired behavior
4. t. introduces groups of rules and procedures at different times
5. t. explains rules and procedures in concrete terms
6. t. demonstrates rules & procedures
7. t. breaks complex r&p into steps
8. t. explains cues associated w/r&P
9. t. demonstrates cues
10. t. has Ss practice r&P
11. t. gives feedback on Ss performance
12. t. reteaches r&p
13. t. communicates consequences to Ss

I. Holds Ss responsible for behavior
1. t. observes Ss behavior
2. t. uses r&p for use of materials/areas
3. storing Ss possessions
4. using learning centers
5. Ss use of shared materials, cabinets
6. Ss use of T's desk and area
7. Ss use of drinking fountain/sink
8. Ss use of pencil sharpener
9. Ss use of bathrooms
10. Ss use of out-of-class bathrooms, drinking fountains, office, lib., resource room, health office
11. passing out books and supplies
12. telling Ss which materials to bring to groups
13. playground
14. lunchroom

t. uses r&p for discussion
15. S participation in class disc.
16. talk among Ss during academic presentation
17. talk among Ss during seatwork
18. talk among Ss during freetime

t. uses r&p for movement
19. Ss lining up to leave room
20. Ss coming and going to other areas of school
21. Ss movement into and out of groups
22. Ss leaving seats during academic presentation
23. Ss leaving seats during seatwork
24. Ss leaving seats during free time

t. uses r&p for assignments
25. Ss getting t. attention for help
26. Ss turning work
27. handing back assignments
28. Ss making up work
29. Ss activities after seatwork is finished

t. uses r&p for
30. selecting Ss for helpers
31. using Ss helpers
32. t. uses r&p for Ss conduct during interruptions and delays
33. t. uses r&p for cueing Ss attention

J. Reactions to Ss behavior
1. t. reacts to Ss not following r&p
2. t. reacts to Ss following r&p
3. t. uses consequences for inappropriate behavior
4. t. uses consequences for appropriate behavior
5. t. reacts to undesired attitudes
6. t. reacts to desired attitudes
7. t. uses consequences for undesired attitudes
8. t. uses consequences for desired attitudes

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Attachment 1. Factor Analysis of the BTOI.

Factor Analysis of Barnes Teacher Observation Instrument

Because the Barnes Teacher Observation Instrument was based upon teaching behaviors identified as "effective" in previous research, it was assumed that the content validity of the instrument was sufficient. It was further acknowledged that the BTOI measures a combination of constructs rather than one underlying construct. Because of this emphasis on a broad view of some of the complexities of teaching, the multitude of teaching activities was included in the instrument and grouped into categories analogous to subtests in a test battery. A factor analysis was conducted to assess the validity of the groupings of those teaching behaviors into those categories. The categories were intended to progress logically from planning through execution to accountability of both academic and procedural teaching behaviors. If the categories were composed of internally consistent groups of behaviors, then the variables within each factor should be highly intercorrelated. Further, the variables included in each factor would have low correlations with variables in other factors. Due to limitations of the SPSS factor analysis subroutine, all behaviors in all categories ($n = 115$) could not be included in the factor analysis. One category, "Holds Students Responsible for Behavior," which consisted of a laundry list of various rules and procedures often used in classrooms was excluded from the factor analysis. Results of the factor analysis are presented in Figure 1.

The factors which emerged serve to support the conceptualization of the observation instrument. The first two factors identified the two basic divisions in the observation instrument, the left side of the BTOI coding page referring to academics (Factor 2) and the right side referring to classroom management (Factor 1). Other factors which emerged support the

Figure 1. Results of Factor Analysis

Variables	Factor loading
Factor 1. Active Teaching of Rules and Procedures (R&P)	
t. circulates as students (Ss) work	.68
t. provides/seeks a rationale for r&p	.87
t. communicates desired behavior	.81
t. demonstrates r&p	.69
t. explains cues associates with r&p	.65
t. gives feedback on Ss performance	.57
t. reteaches r&p	.94
t. reacts to Ss not following r&p	.77
Factor 2. Active Teaching of Academics	
t. posts assignments for day	.58
t. presents new information	.66
t. divides complex tasks into steps	.55
t. gives demonstration	.88
t. gives directions	.70
t. answers procedure questions after direction-giving	.63
t. tells Ss they must complete assignment	.65
t. makes assignment using procedure	.81
Factor 3. Hold Students Responsible for Assignments	
t. makes daily homework assignments	.52
t. tells Ss their work will be checked	.62
t. tells Ss they must complete assignment	.59
t. requires Ss to keep notebooks	.78
t. returns graded work to Ss	.79
t. communicates makeup work to Ss	.79
Factor 4. Practice (academic)	
t. conducts practice over new (or old) material in whole group	.90
t. checks responses for correctness	.85
t. provides feedback	.88
Factor 5. Product Questions	
t. asks product question-answer correct	.80
t. calls on nonvolunteers	.69
t. calls on students in predetermined pattern	.91
t. accepts callouts	.66
Factor 6. Seatwork	
t. reacts to Ss not complying with assignment	.61
t. circulates as Ss work	.51

t. scans seatwork as Ss work	.67
t. gives individuals assistance	.88
t. has Ss record assignment in designated place	.80

Factor 7. Instructional Skills for teaching R&P

t. introduces r&p at different times	.82
t. explains r&p in concrete terms	.75
t. breaks complex r&p steps	.60

Factor 8. Maintains Academic Participation

t. refers to previous lesson content	.59
t. corrects mistakes in instructional material	.67
t. moves around classroom	.62
t. reminds Ss work will be checked	.85

clustering of teaching behaviors into more discrete categories: Holding Students Responsible for Assignments (Factor 3), Practice (Factor 4) and Seatwork (Factor 6). Factor 5 reflected the common behaviors in the classrooms of asking product questions and choosing students to respond in one of several ways. Factor 7, Instructional Skills for Teaching Rules and Procedures, appeared to support the use of commonly accepted teaching techniques, like using concrete terms, when teaching rules and procedures. The eighth and final factor grouped teacher behaviors which ensure continued participation by students in classwork.

In summary, the factor analysis lent some support to the conceptual organization used on the BTOI to categorize the various teaching behaviors identified by previous research.

Attachment 2. Student Engagement Rating Form

STUDENT ENGAGEMENT RATINGS

Teacher # _____ School # _____ Observer # _____

Students _____ Grade _____ Date _____ AM PM Page _____ of _____

	1	2	3	4	5
Time					
Format # of adults					
Subj.-T.					
Subj.-Ss.					
# in room					
# def. on, acad.					
# prob. on, acad.					
# def. on, proc.					
# prob. on, proc.					
# off, unsanc.					
# dead					
# can't see					
Ss Success					

	6	7	8	9	10
Time					
Format # of adults					
Subj.-T.					
Sub.-Ss.					
# in room					
# def. on, acad.					
# prob. on, acad.					
# def. on, proc.					
# prob. on, proc.					
# off, unsanc.					
# dead					
# can't see					
Ss Success					

Appendix D

Pre-Observation Teacher Contact

Observer: One or two days prior to your schedule observation contact the teacher you are to observe, confirm the observation, and ask these questions.

Ms./Mr._____, I would like to confirm the observation in your classroom scheduled for _____.

1. Can you tell me what subject you will be teaching at that time?
2. What activities will you and your student do? (Interviewer: probe for classroom format like teacher presentation followed by seatwork, learning centers.)
3. Have you used this approach before? (Observer: If answer is "no" be sure to focus on the teacher's explanation of procedures during observation.)
4. What rules and procedures will students need to follow during the class?
5. Will you evaluate the students during or after the lesson? If so, how?
6. What specifics will you cover? What do you expect the students to be able to do after this lesson in (subject)?

(For observations subsequent to the first observation.)

7. Have you made any changes in the way your class is organized since the last observation?
8. May I have copies of handouts or assignments after the observation?

Teacher #_____

Date_____

School #_____ Page_____

Appendix E

Demographic Questionnaire

CTP Study

Please complete the following.

1. Name_____
2. Male_____ Female_____
3. Age ____20-29 ____30-39 ____40-49 ____50-59 ____60 or over
4. Ethnicity Anglo____ Asian____ Black____ Hispanic____
   Other_____ (specify)
5. What, specifically, is your current position? (e.g., 4th grade teacher, secondary school principal, etc.)_____
6. How many years have you been in your current position?_____
7. How many total years have you been or were you a classroom teacher?
   _____
8. What level(s) did you teach?_____
9. Where did you teach? (name of schools, locales and years of experience at each)_____
   _____
   _____
   _____
10. Please list the degrees you hold and where they were earned.

Institutions	Dates attended	Degrees earned	Major/Minor

11. How many (if any) graduate credits have you earned beyond your recent degree?_____

12. Are you currently working toward a degree? _____yes _____no

    Major:_____ Minor:_____

13. What other professional responsibilities do you presently hold?____

    _____

14. Indicate the socioeconomic status of the majority of the students in the school you are now working in.

    Low_____ Middle_____ High_____

15. Indicate the approximate percentage of students in each ethnic group in the school you are now working in.

    Anglo____ Asian____ Black____ Hispanic____

    Other_____(specify)

16. Indicate the size of the school you are now working in.

    Small (500 or less)_____ Medium (500-1500)_____ Large (over 1500)_____

17. List the professional organizations to which you belong._____

    _____

    _____

Appendix F

Teacher Questionnaire

1. How confident are you in teaching each of the various subjects included in the curriculum?

2. How confident are you in your ability to teach all types of students in your classrooms?

3. How confident are you that your students are capable of learning the curriculum taught in your classroom?

4. (a) Please describe student attitudes which are desirable and those which are undesirable in your classroom.
   (b) How do you communicate this information to your students?

5. (a) Describe student behaviors which are desirable and those which are undesirable in your classroom.
   (b) How do you communicate this information to your students?

6. Describe any long range learning goals which you have for your students.

7. (a) Does your school have defined learning goals for the students?
   (b) If so, describe them.

8. (a) Does your district have defined learning goals for the students?
   (b) If so, describe them.

9. Characterize the amount and kinds of planning for instructional activities and management which you do for your classroom.

10. (a) What factors enter into your decisions regarding methods, techniques, or activities to use in your classroom?
    (b) Do you ask students for their preferences or opinions? What other means do you use to determine how students are reacting to class?

11. How much time do you set aside for each of the various subjects and activities in your classroom?

12. Describe the methods you use to assess the various abilities that students bring to your class at the beginning of a new year.

13. (a) How do you make students aware of homework assignments?
    (b) How do you make students aware of classwork assignments?

14. (a) Do you make students aware of your grading criteria?
    (b) If so, how do you communicate these to the students?

15. (a) Do you call students' attention to unfinished work or make-up work?
    (b) If so, how?

16. If you have a listing of rules and procedures for your students to follow, please attach it to the questionnaire.